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AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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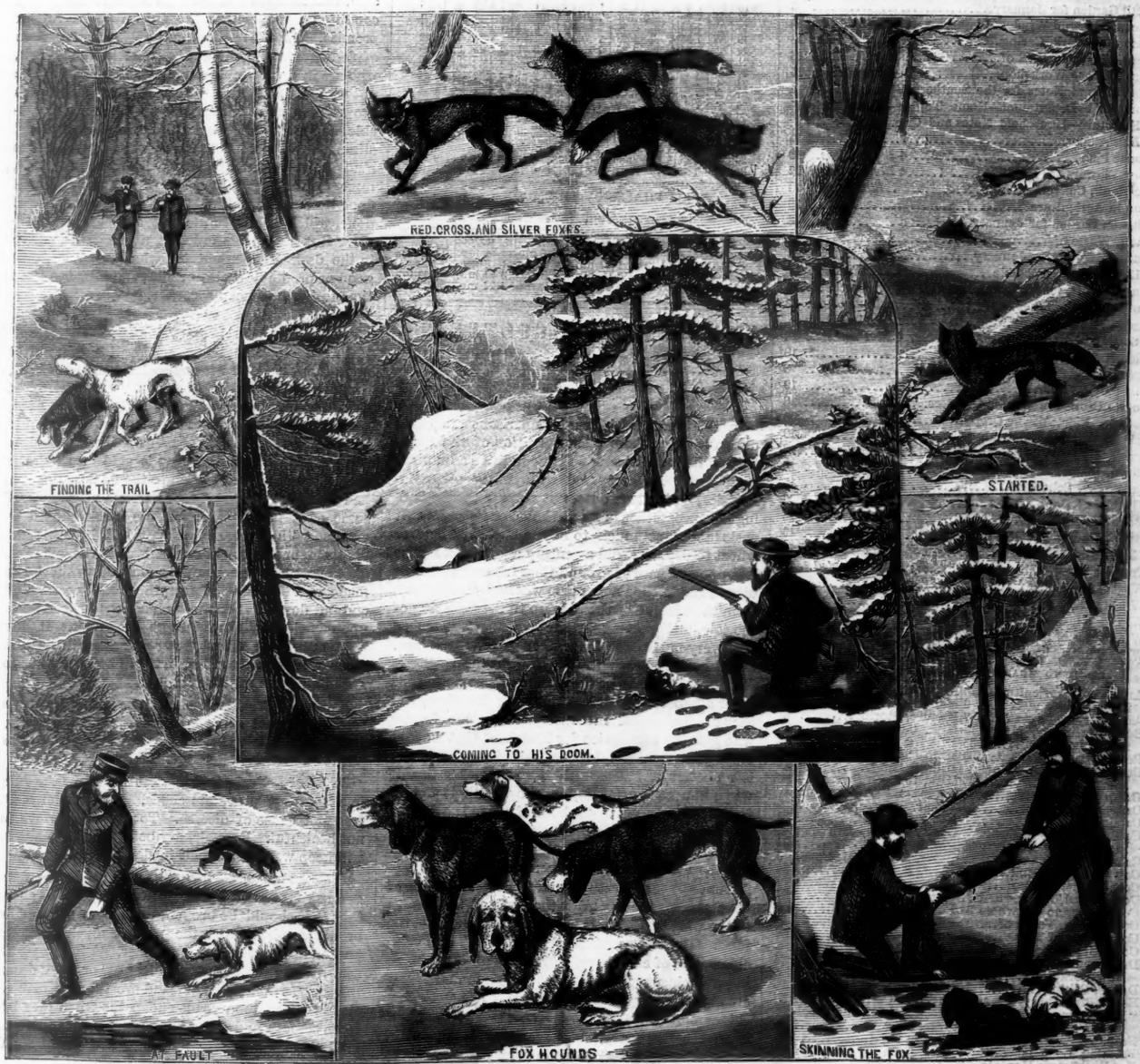

HUNTING THE FOX.—*Drawn and Engraved for the American Agriculturist.*

The fox-hunting scenes given above, will strike those who are familiar with fox-hunting in England, or in the few parts of this country, where the fox is hunted for sport, as very unlike the real thing. In many states the fox is regarded as "vermin," and is hunted to get rid of him as a pest, and also for his skin. The hunters take advantage of the habit foxes have of running around and around, when pursued by hounds, in nearly the same course. The majority of foxes so pursued in a given tract of country, will take the same route, provided they are not too hard pressed, otherwise they will make off across the country, therefore slow dogs are the best. The hunter goes on foot, often alone, and carries a gun. His object is to get in the course of the fox, and shoot him as he makes his circuit, or crosses from one hill or piece of woodland to another. Seldom more than two or three dogs are used, oftener only one. The skin being carefully removed, is drawn flesh side out upon a board of the proper size and shape, stretched tightly, and fastened with nails. The skin of the red fox varies in price from $1.00 to $2.50. They are mostly sent to Russia. The few used here are so changed by dying, as to be unrecognizable. Cross and Silver, or Black foxes, varieties of the Red, but very different in color, are much more valuable, the first being worth $5.00 and upward, while the Silver or Black will bring from $50 to $100 each, according to quality, being always scarce, fashionable, and high-priced.

UNIVERSITY OF MICHIGAN

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Calendar for January.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	S	7 30	4 38	9 37	7 24	4 44	9 39	7 19	4 49	9 41
2	S	7 30	4 39	10 43	7 24	4 45	10 43	7 19	4 50	10 44
3	M	7 30	4 40	11 50	7 24	4 46	11 49	7 19	4 51	11 49
4	T	7 30	4 41	morn	7 24	4 47	morn	7 19	4 52	morn
5	W	7 30	4 42	0 57	7 24	4 48	0 55	7 19	4 53	0 53
6	T	7 30	4 43	2 11	7 24	4 49	2 7	7 19	4 54	2 4
7	F	7 30	4 44	3 30	7 24	4 50	3 21	7 19	4 55	3 17
8	S	7 30	4 45	4 46	7 24	4 51	4 40	7 19	4 56	4 33
9	S	7 30	4 46	6 5	7 24	4 52	5 58	7 19	4 57	5 51
10	M	7 29	4 47	7 14	7 24	4 53	7 7	7 19	4 58	6 59
11	T	7 29	4 48	rises	7 23	4 54	rises	7 18	4 59	rises
12	W	7 29	4 49	6 41	7 23	4 55	6 45	7 18	5 0	6 49
13	T	7 28	4 50	7 57	7 23	4 56	7 59	7 18	5 1	8 2
14	F	7 28	4 51	9 8	7 22	4 57	9 10	7 17	5 2	9 11
15	S	7 27	4 53	10 16	7 22	4 58	10 16	7 17	5 3	10 16
16	S	7 27	4 54	11 21	7 22	4 59	11 19	7 17	5 4	11 18
17	M	7 26	4 55	morn	7 21	5 0	morn	7 16	5 5	morn
18	T	7 25	4 56	0 26	7 21	5 1	0 24	7 16	5 6	0 21
19	W	7 25	4 58	1 29	7 20	5 3	1 26	7 15	5 7	1 22
20	T	7 24	4 59	2 26	7 19	5 4	2 31	7 14	5 8	2 25
21	F	7 23	5 0	3 38	7 18	5 5	3 32	7 14	5 9	3 26
22	S	7 22	5 1	4 44	7 18	5 6	4 27	7 13	5 10	4 30
23	S	7 22	5 3	5 42	7 17	5 8	5 34	7 12	5 11	5 26
24	M	7 21	5 4	6 29	7 16	5 9	6 22	7 12	5 12	6 15
25	T	7 20	5 5	7 8	7 15	5 10	7 2	7 11	5 13	6 55
26	W	7 20	5 6	sets	7 15	5 11	sets	7 10	5 15	sets.
27	T	7 19	5 7	6 22	7 14	5 12	6 27	7 10	5 16	6 30
28	F	7 18	5 9	7 30	7 13	5 13	7 33	7 9	5 17	7 35
29	S	7 17	5 10	8 35	7 12	5 15	8 36	7 8	5 19	8 37
30	S	7 16	5 11	9 39	7 12	5 16	9 38	7 8	5 20	9 38
31	M	7 15	5 13	10 50	7 11	5 17	10 48	7 7	5 21	10 46

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
1st Quart	4	10 40 mo.	10 28 mo.	10 16 mo	10 4 mo.	9 34 mo.
Full M'n	10	1 39 mo.	1 27 mo.	1 15 mo	1 3 mo.	0 33 mo.
3d Quart.	18	4 5 mo.	3 55 mo.	3 41 mo	3 29 mo.	2 59 mo.
New M'n	26	8 53 mo.	8 46 mo.	8 34 mo	4 22 mo.	3 52 mo.

AMERICAN AGRICULTURIST.

NEW YORK, JANUARY, 1876.

In this Centennial Year comparisons are being drawn between the present condition of the country and its industries, and their condition a hundred years ago. As compared with many other industries, agriculture does not show a corresponding advance, either in its methods, or its profits. It costs about as much to raise a bushel of corn or wheat to-day, as it did a century ago, and we raise less upon an acre of ground than formerly. On the other hand, a shoe now made wholly by machinery, from the tanning of the hide up to the polishing of the sole, and putting in the eyelets, is produced with very much less labor than a few years ago. But it costs as much to the wearer; the saving is distributed among the thousands of people, whose labor all goes to help in producing the shoe, and they are better off in consequence. The farmer who gets the same price for his wheat that he did many years ago, and does not raise it for any less, is no better off. The world is vastly richer than it was a hundred years ago, but the wealth is not in farmers' hands. It is doubtful if there is a farmer in the world who is worth a million dollars, or a tenth of that sum, who has made it by farming. But there are thousands of persons who have made fortunes by manufactures and trade. The labor of the steam-engine has made the bulk of the wealth of the world. Steam is everywhere, except on the farm. The steam-engine, the silent, but very valuable labors of chemistry, and scores of other helps in producing wealth, and lessening manual labor, are at work everywhere but there. It may be that this cannot be helped, but it would be strange if every other industry, except farming, is capable of improvement, and that this is bound to stay where it is, if it does not even go backward. It is a fact that farmers are not sufficiently well paid for their labor. The reason, or one reason, must be, that their labor is not good enough, or sufficiently intelligent. A man who now makes shoes by hand, is a poor man, and must remain so. He can not stand the competition with machinery. The farmer works too much with his hands, and he suffers in competition with other industries, in which handwork is superseded by steam or other power. What is the remedy?—It can not come in a day. It must come only through greater intelligence and enterprise. These are gained by reading, study, and education. Farmers, as a general thing, do not read as much as mechanics. But one in a hundred reads a really good, trustworthy, agricultural paper, or meets in a farmers' club, to discuss questions of practical interest to him. The rest are not well versed in matters pertaining to their own business. They have not faith in it. They have not yet learned that there is a better method of investing their savings than in the bank and in stocks, and that it would be far better to invest it in making their land more fertile, in draining and enriching their fields, and that it is far cheaper and better for them to raise forty bushels of wheat from an acre of ground, than to get the same quantity from three acres. It is not by fighting against, or opposing the advances of other industries, but in making their own less laborious and more profitable, that farmers can hope to improve their own condition. We believe the future to be full of promise. There are thousands of the better class of farmers, intelligent and earnest in their work, who are in comfortable circumstances, if they are not what is called rich. Year by year their crops grow larger, and their farms better and more valuable, and their example and influence benefits and stimulates others. It is a good time just now to study, how we can make our work more profitable, remembering that it is only work thoroughly well done that can be well paid for, and that only is well done, which is done in the best and cheapest manner. But a farmer who keeps no accounts, works in the dark, and can not tell whether he is doing good or profitable work, or not, and now is a good time to begin to keep accounts.

Hints about Work.

An Account should be opened with every field upon the farm, and with every kind of stock kept, commencing with the first of the year. Each field should be numbered or named, and whatever labor, seed, or manure, goes into or upon that field, should be charged at fair prices, just as if it were sold to a neighbor. When the crop is sold or used, the proceeds should be credited to the field just as if it had been received in payment from a neighbor. If some of it is fed to stock, the stock should be charged with the value, as if it had been bought for them, and the field credited with the amount. To commence the accounts, an inventory should be made, and the value of everything fairly estimated and put down. If any work has already been done upon a field, that should be charged to it. It may not be very easy at first, but very soon will be, and when once it has been begun it will be kept up. Do not mind some mistakes at first.

Feeding Stock.—Stock should be well fed at this season. Do not spare feed, but do not waste any. It is easier to keep flesh on an animal now than to put it on in March.

Buildings.—Perfect cleanliness should be the rule in all stables, pens, and sheds. Filth is the most frequent cause of disease. Too much warmth is not healthful. Pure air, dry beds, and clean skins, will keep well fed animals in sleek condition.

Paths and Roads.—Icy paths and roads are dangerous to man and beast. After every fall of snow the roads should be broken down by a snow-plow or a stone-boat, and the paths shoveled out or packed down in a similar manner. A heavy plank drawn along the paths will clear off or pack down the snow. Coal ashes or sand are the best materials to scatter upon roads and paths when they become smooth and slippery. In the south, where mud prevails at this season, dry paths and drained yards will be a great addition to comfort.

Horses.—Work horses should be either sharp-shod or protected in some secure manner against slipping upon icy roads. Sharp calks are dangerous, and many horses are badly blemished by them. We have used the Goodenough shoe with a piece of rubber beneath it for this purpose. The rubber over-shoe is an excellent device. Either of these are effective preventives against balling or slipping. We do not advise the use of sharp calks when these can be procured.

Cows.—In-coming cows should be well cared for.

Some linseed-cake meal or bran in their feed will do no harm, but more exciting food should be avoided. A roomy stall or loose box should be provided in which the cow may remain at night without being tied. Milking cows will be benefitted by a pailful of milk-warm water with two quarts of bran or middlings stirred in it twice a day. Cold water for drink will greatly reduce the quantity of milk.

Young Stock will need close attention to keep them thriving and free from vermin. A mixture of lard and kerosene oil rubbed along the backbone from head to tail will free them from lice. Young animals need better protection from cold than full grown ones, which have thicker hides, and are better furnished with fat as protection from the cold.

Warbles.—The great majority of cattle are infested with grubs of the ox-bot fly. They are known as "warbles," and may be found hidden beneath the skin in lumps or swellings along the back on each side of the backbone. If these lumps are examined, a hole will be seen, and if the lump is squeezed from the bottom, a fat white grub may be forced out. These are the larvæ of the bot-fly which trouble cattle so much in the summer time. If the grubs were squeezed out of their nests at this season and destroyed, the pest would soon become extinct.

Sheep should have plenty of exercise and fresh air. Above all things they should not be allowed to lie upon warm manure piles, which they will do if permitted. A pailful of boiling water should be put into the trough to take the chill off from the water. This is especially useful for in-lamb ewes to which a chill from drinking ice cold water may be hurtful. In the southern states, where sheep are running in the fields or woods, shelter from the rains should be provided. Where they are yarded, they should be kept dry. Dry feet are never troubled with the foot-rot.

Swine.—Pork is high and hogs are scarce. This has been the case for two years. For want of care thousands of hogs have been lost in the western states by various fatal diseases. Where they are well cared for, there is no cholera or other diseases. In general, disease is simply the result of the most inexcusable neglect or bad treatment. When well cared for, no stock pays better or increases faster than swine, and no other pays better for care in breeding, and well selecting breeding animals. At present prices pork pays.

Fowls.—A few early laying hens that have been well fed will become broody about this time. It will not pay to allow them to "sit." The chicks cannot be raised with profit. Such hens should be given a few pills made of castile soap and sulphur, have no warm food for a few days, and be put into a shed where there is no place for them to make a nest. They will soon get over their incubative fever.

Ice.—If no ice-house has been made, some ice may be put up in a corner of a barn or a shed. But by all means some ice should be put up if it can be procured. A thick layer of sawdust should be placed beneath the ice, and plenty around it. Sawdust is the best packing, and is cheaper than any other in the end, although its first cost may be more. The ice chosen for cutting should be kept free from snow for some time before it is cut, that it may freeze thick and solid.

Seeds.—The stock of seeds for the coming season should be procured as soon as possible. If left until seed time is at hand, much delay may occur, as seedsmen are then crowded with orders. A good plan is to send to some respectable seedsman for a catalogue, and select some well known standard kinds for the main crops, both for the garden and the fields. If any new varieties are tried, a small quantity only should be used at first, until it is known that the soil and locality are favorable. Make a list of all seeds needed at once.

Tools and Implements.—This is the best season to repair and paint wagons, carts, and implements. Everything of the kind should be put in the best order for future use. More tools rust out for want of care, than wear out. What is saved by care, is the same as earned twice over, the thing is not only saved for use, but the price of another is saved too.

Drains.—Much may be done in cleaning out drains, and in some sections in making drains. When the spring rains arrive, or the ground is full of water, draining can not be done with advantage.

Wash-outs.—These are by far too common in the south, and greatly injure the value of farms where they occur, besides giving an unfavorable appearance to the country. They may be prevented by plowing the hill-sides deeper, and using a side-hill plow, making the furrows diagonally up and down the hill, instead of level back and forth, or around them. To fill them, throw in brush or stones, and plow the edges into the hollow, gradually widening the plowing, until there is a gradual hollow. Where they are feared, a number of plow-furrows should be made sloping gently down the hill, to carry off the water.

Fodder Crops.—Calculations for fodder crops should be made for the coming season. Where the winter is open, some plowing may be done for these crops. Fodder is never too plentiful, and in the southern states is the great need of the farmer. Oats and peas, or tares and barley, furnish heavy crops of green fodder, or dry hay if cut when in blossom. They may be sown as soon as the danger from frost is over. Four bushels of the mixed seed per acre is a proper quantity to sow. The richer the ground, the better for a fodder crop.

Yards should be kept well littered and dry; the feed troughs should be always turned over at night, so that if snow should fall they would not be filled with it; and water troughs should have loose covers for the same reason.

In the Southern States the month should be devoted to gathering and making manure, breaking up for the cotton-planting, and making contracts for labor. By and by the best hands will be engaged, and time may be lost in looking for others, or second-rate ones have to be taken. It is well, as far as possible, to keep the good hands year after year. Oats may be sown in this month, the red rust-proof being preferable. To secure against a sudden frost the seed should be covered three inches deep and rolled. Fences should also be thoroughly repaired, and every "hog-hole" closed solidly.

Work in the Horticultural Departments.

Orchard and Nursery.

The amount of out-door work that can be done in the orchard in the northern states is limited. Nurserymen, however, accomplish a great deal at this season. Preparations having been made,

Root-Grafting may be pushed rapidly. We have before given directions for doing this, but half an hour's watching of a set of expert grafters, will be better than a volume of description; there are many ways in which the labor may be divided, and little manipulations by which time is saved, which can only be learned in practice. Have but one variety of fruit in hand at a time, and use the greatest care in labeling. The grafted roots should be set in boxes with sand just moist enough to prevent drying, and not damp enough to induce mold. Keep in a cool place.

Cutting Back.—Nurserymen who send out well-shaped trees, head back the growth made the first year from the bud or graft, and induce limbs to start near the base; this work is done during the winter, and at the end of the next season fine stocky trees are produced.

Pruning may be done during mild spells, any time before the buds begin to swell. If large limbs are removed, cover the wounds with shellac varnish or common paint, after having first smoothed the cut carefully with a sharp knife or chisel.

Scraping the dead bark from the trunk and larger limbs is best done during a damp thawing spell, first giving the trunks a wash of whale-oil or soft soap, applied with a brush; this will give the bark a smooth, healthy appearance.

Broken Limbs.—If any branches of trees break under the heavy weight of ice or snow, the wound must be cut smooth, and painted or varnished. If a branch is only partly broken off, but still hangs, cut it away at once, for, should there be a high wind, more damage will be done.

Mice and Rabbits.—Tramp the snow firmly around the trunks of the trees, to keep away mice, and sprinkle blood or rub refuse meat upon them, to keep off rabbits.

Cions—Cut during mild weather, and store in sawdust or sand in the cellar, after labeling.

Preparing to Plant.—One who intends to set out an orchard should begin at once the preliminary work. The mere setting out of the trees is but a small part of the labor. The first things to settle are, how many trees to plant, of what varieties, and where they are to come from. We have often said—and shall probably say it many times more—no advice as to what to plant is so valuable as that of your neighbors. The fruit-list of the American Pomological Society, and that of your State Society are useful, but their information is too general. One looks at these lists, and finds that there are scores of apples and other fruits that are starred and double starred for his state, and he at most wants six or ten varieties, and perhaps fewer. In his despair he writes us to know what he shall plant. We can only give him the general information that these fruit-lists do. In such a case hitch up your horse, and make a journey around the neighborhood—no matter if it takes two or three days; the time will be well expended, for the information derived from those in a similar locality, will be vastly better than can be obtained in any other manner. Select only well known and tested varieties, and no matter how highly praised a new sort is—or how gaudy the picture of the fruit—let it severely alone, unless you care to take one tree only just to try.

Where to Buy? is the question very frequently asked, and which we generally decline to answer. Buy of a responsible man, wherever he may be; the nearer he is, the better, but be sure that the trees come from some established nursery. Other people think differently, but for ourselves, we would not take trees from an unknown party, if he would give them and set them out free of cost. Some people can afford to wait from 6 to 12 years to find out that, instead of the trees ordered, they have only a lot of rubbish; and the man of whom they bought them is nowhere to be found. To avoid all this loss of time and bitter disappointment, buy of established nurserymen only.

Send your Orders as soon as the list is determined upon. It is better to buy in the fall, but do not lose a year's growth. Order now, and order early, that you may be the better served.

Labels may be prepared and painted during cold, stormy days, when nothing can be done.

Fruit Garden.

Fruits and vegetables are often planted together, the small fruits, such as blackberries, raspberries, etc., are put along the fence-rows, and it is no wonder that in such spots the fruit is poor in quality and quantity. Where it is possible, the two gardens should be separate, as this allows better culture for both fruits and vegetables. There is nearly always some wall or building against the sheltered side of which may be planted one or more grape vines. The border should be dug out, and properly filled with good, fresh soil, and if any fertilizer is used, let it be broken bones. In two or three years a fine crop of fruit may be gathered. There is no excuse for a lack of fruit on any farm in the country; there are numerous places around every farm-house, where small fruits may be easily grown, if a little pains is taken. Villagers with small lots manage to have an abundance of fruit, but large farms are too often lacking in this.

Kitchen Garden.

The proper enjoyment of the fruits of last season's labors in the garden, will depend greatly upon the care given to storing the vegetables. Roots should not be allowed to dry and wilt, and they must not be kept so warm that vegetation will start. If kept in moderately dry earth or sand, they will now be nearly as fresh as when dug, as the earth prevents all shrivelling. The roots not

protected in this way should be covered with straw. During every day that is not freezing, the doors should be opened, to keep the temperature low.

Celery stored in trenches in the open ground, should be well covered with straw and boards during very severe weather; provide surface-drains to take away all water which may collect near the trenches. A week's supply may be taken out, and put into boxes, and stored in the cellar, where they can be readily got at.

Cold Frames.—Give air on every mild day, else there will be danger that the plants may commence to grow from too much heat.

Manure.—Prepare the manure that is to be used next spring by an occasional turning. Save all house-slops to pour upon the compost heap.

Pea-Brush.—Prepare a quantity for use next season, and store under cover, placing heavy weights upon the piles, to flatten them into proper shape.

Bean-Poles may be cut at any time when the snow is not too deep to get into the woods; red cedar makes the most durable poles.

Seeds which are to be ordered from a distance, should be sent for at once. If left until needed for use, the varieties needed may be exhausted. Clean and prepare all home-raised seeds, and label and store in a dry cool place away from mice.

Flower Garden and Lawn.

The work in this department at the north, is only one of preparation. New arrangements of flower-beds and borders may be planned better now than when the hurry of spring work comes. Rustic work can be made during the winter; cedar may be got from the swamps while they are frozen, and other woods, such as laurel and the like, may be cut, and these with a little ingenuity, may be made into tasteful trellises, seats, and other garden ornaments; for making hanging baskets, deep wooden bowls and rattans are needed. Secure all flower seeds at once, so that they will be ready as soon as needed for sowing in the hot-beds.

Greenhouse and Window Plants.

As the sun gets more powerful, the plants in the greenhouse and windows should be looking at their best. During cold nights a thin cloth or newspapers thrown over house plants, will protect them from being chilled.

Insects must be looked after, else they will soon over-run the plants. Fumigate at least once a week, to kill the green fly, selecting a time when the house is not too moist. To destroy the red spider, it is only necessary to sprinkle the plants thoroughly once or twice every week. Mealy bugs must be destroyed by hand picking.

Annuals.—Sow seeds of Candytuft, Sweet Alyssum, and Mignonette, etc., for cut flowers.

Forcing.—A few plants of Bleeding Heart, Deutzia gracilis, and Lily of the Valley, may be brought into heat now, when they will soon flower.

Bulbs of Hyacinths and Narcissuses, which were potted for winter blooming, may be brought into the greenhouse or sitting-room from time to time, if they have made roots abundantly.

Horticultural Notes for the Southern States.

In view of the large and increasing circulation of the *American Agriculturist* in the southern states, we have arranged with a gentleman, who, in practical knowledge and wide experience, is second to none, to furnish us with monthly notes, suited to the warmer parts of the country.

The majority of farmers leave almost all kinds of garden work to be attended to until after the holidays, and thus lose the most favorable opportunity to thoroughly prepare their land. After the cotton-picking is ended, there is usually a short time in December, when suitable weather prevails, and this period should be partially devoted to gardening operations. Unfortunately this favorable time is seldom used to the right purpose. With the advent of the new year, other matters of seemingly greater importance to the farmer, require his time and attention, and with making preparations for the active farm-work, the garden-work is hurriedly and imperfectly performed; seeds are put in a badly prepared soil, and the results are unsatisfactory. We presume, however, that all our progressive farmers have not neglected the garden-work, which should be performed during December, but if this is still undone, no time should be lost in giving it immediate attention.

The Orchard must have a shallow and careful plowing, so as not to destroy the roots of the trees. Top-dress the land with compost, ashes, plaster, etc. If trees are failing in vigor, give them a liberal top-dressing of fertilizers, and dig this under, taking a circle at least equal to the spread of the branches of the tree. Pruning may be performed, but where only a small number of trees are to be cared for, it is preferable to delay this operation until February. Prune grape-vines, and train to arbor or trellis, as needed by the different varieties.

Transplant Fruit Trees without delay, if not already done; there exists a general impression among our people that fruit trees can only be transplanted during November, and again in February, and that either December or January are unsuitable for this operation. Nothing is more erroneous; doubtless this idea originated from the perusal of horticultural works published in localities where the ice-bound soil renders the work impossible during these months. In all the southern states where the soil is seldom frozen, tree planting may be performed from the fall of the leaf, until new vegetation commences in March. But early fall-planting has numerous advantages over spring-planting. Although fruit trees do not make a growth of wood and leaves, they are continually increasing their root-growth, this never ceases here during the period of rest of the tree, hence, if one has transplanted his trees early in the winter, he will have secured considerable root-growth, and his trees will be firmly established when vegetation starts in spring.

Early Potatoes should be planted from the beginning to the 20th of this month in all light soils; but in strong clay soils planting should be delayed until February. Very little is gained by planting too early, especially in strong soils, where the danger of decaying in the ground is to be apprehended. Perhaps no better variety than Early Rose can be advised, it has been so eminently successful wherever it has been cultivated, that it should not be put aside for newer varieties, which are no doubt very meritorious, but need further trial, before risking them for a general crop.

Hardy Vegetables.—Sow peas, radishes, and lettuce from 1st to 15th of this month; carrots, beets, parsnips, salsify, etc., after the 15th. Continue to sow spinach, radishes, etc., at intervals, for succeeding spring crops.

Hot-Beds and Cold Frames.—Prepare these, and sow early cabbages; we find Large Early York and Early Winningstadt still unsurpassed for the earliest. For second early sow Early Wyman, Early Savoy, etc.

FLOWER GARDEN.—Prepare seed-beds by digging and manuring thoroughly.

Prune Roses, and see that the old wood is removed and replaced by last year's growth. Plants must not be allowed to become crowded with the old wood; a few stout young shoots of last year's growth, cut back to six or eight inches of the ground, will produce better flowers, than can possibly be expected if the plants are left unpruned, and burdened with a mass of branches.

Deciduous Shrubs, which continue to flower during the summer and fall, must be pruned. Those flowering in spring only, should have been pruned last summer, after they passed out of bloom. If these are pruned now, they will flower sparingly, as their bearing wood is formed during the previous year.

Camellias will bloom profusely during this month in the open ground, and it is desirable to protect the buds from heavy cold weather. This can be done by placing a frame over the plants, and covering it with a cloth during very inclement weather.

Greenhouses should be kept well ventilated, especially if Camellias are grown under glass; failing in this, the loss of the flower-buds may be the result.

Soft-wooded Plants, for bedding out in spring, must now be propagated; transplant Verbenas, and other hardy perennials, if they have been grown in pots, but always harden off seedlings before exposing them in the open ground.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending Dec. 13th, 1875, and for the corresponding month last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 d's *this* m'th	389,000	3,115,000	1,904,000	42,000	207,000	796,000
26 d's *last* m'th	491,000	4,873,500	2,014,000	151,000	412,000	1,379,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 d's *this* m'th	401,000	3,769,000	1,886,000	74,000	502,000	1,812,000
26 d's *last* m'th	473,000	5,104,000	2,912,000	69,000	431,000	2,107,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1875	389,000	3,115,000	1,904,000	42,000	207,000	796,000
25 days 1874	397,000	2,376,000	1,404,000	129,000	307,000	1,312,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1875	401,000	3,769,000	1,886,000	74,000	502,000	1,812,000
25 days 1874	360,000	3,001,000	2,315,000	92,000	289,000	1,209,000

3. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
Dec. 7, 1875	5,878,036	816,962	99,908	305,961	1,252,005	258,364
Nov. 8, 1875	3,219,457	1,112,998	79,355	277,400	815,591	249,986
Oct. 11, 1875	2,382,502	1,682,246	10,910	21,688	429,698	261,428
May 11, 1875	969,804	1,542,924	16,124	16,537	545,209	229,655
Jan. 11, 1875	3,675,122	1,049,900	50,839	191,470	877,014	145,617
Nov. 9, 1874	3,680,141	1,727,540	19,123	117,185	794,722	135,882

4. *Exports from New York, Jan. 1 to Dec. 9.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
1875	1,789,299	25,054,035	12,495,349	159,952	1,505	132,754	415,019
1874	2,035,423	33,700,159	18,329,781	641,661	3,320	110,334	422,533

5. *Receipts at head of tide-water at Albany each season to Dec. 1.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.
1875	113,600	21,335,200	8,581,800	250,900	3,833,600	3,165,300
1874	165,200	23,791,500	17,773,200	337,600	3,428,400	3,581,500
1873	153,500	22,761,700	18,552,200	900,200	2,153,300	3,385,900
1872	137,300	11,349,100	29,928,700	474,600	4,548,600	5,636,600
1871	290,700	21,313,400	20,042,300	1,107,900	3,839,400	6,639,400
1870	430,400	17,124,700	4,805,100	887,500	3,984,700	6,167,500

CURRENT WHOLESALE PRICES.

	Nov. 12.	Dec. 13.
PRICE OF GOLD	114 3-8	114 3-8
FLOUR—Super to Extra State	$4 90 @ 6 25	$4 40 @ 5 85
Super to Extra Southern	4 90 @ 8 75	4 40 @ 8 50
Extra Western	5 35 @ 8 50	4 85 @ 8 50
Extra Genesee	6 00 @ 7 25	5 85 @ 7 00
Superfine Western	4 90 @ 5 30	4 40 @ 4 75
RYE FLOUR	4 00 @ 5 50	4 10 @ 5 35
CORN-MEAL	3 25 @ 4 00	3 15 @ 4 00
BUCKWHEAT FLOUR, ₱ 100 lbs	2 40 @ 2 75	2 15 @ 2 65
WHEAT—All kinds of White	1 30 @ 1 50	1 30 @ 1 50
All kinds of Red and Amber	95 @ 1 45	95 @ 1 40
CORN—Yellow	76 @ 77	68 @ 75
Mixed	73 @ 76	62 @ 75
White	75 @ 82	67 @ 76
OATS—Western	42 @ 53	43 @ 53
State	44 @ 53	45 @ 53
RYE	85 @ 92	85 @ 95
BARLEY	80 @ 1 25	85 @ 1 35
BUCKWHEAT, ₱ bush	68 @ 72	65 @ 67
HAY—Bale, ₱ 100 lbs	65 @ 1 10	70 @ 1 15
STRAW, ₱ 100 lbs	50 @ 95	55 @ 1 00
COTTON—Middlings, ₱ lb	13¾@ 13¾	13 @ 13¼
HOPS—Crop of 1875, ₱ lb	12 @ 17	10 @ 15
FEATHERS—Live Geese, ₱ lb	33 @ 60	35 @ 55
SEED—Clover, ₱ lb	10½@ 11	12½@ 13
Timothy, ₱ bushel	2 25 @ 2 65	2 30 @ 2 80
FLAX, ₱ bushel	1 55 @ 1 65	1 65 @ 1 70
SUGAR—Refi'g & Grocery ₱ lb	6¾@ 9¼	6¾@ 9¼
MOLASSES, Cuba, ₱ gal	28 @ 38	28 @ 38
New Orleans, new crop, ₱ gal	70 @ 80	54 @ 64
COFFEE—Rio (Gold)	17¾@ 20¾	18 @ 20½
TOBACCO, Kentucky, &c., ₱ lb	8 @ 25	6 @ 25
Seed Leaf, ₱ lb	6 @ 25	6 @ 25
WOOL—Domestic Fleece, ₱ lb	28 @ 60	28 @ 62
Domestic, pulled, ₱ lb	27 @ 50	27 @ 50
California, clip	14 @ 38	14 @ 38
TALLOW, ₱ lb	9¼@ 9¾	9¾@ 10
OIL-CAKE—₱ ton	40 00 @44 50	42 50 @46 50
PORK—Mess, ₱ barrel	22 50 @ —	21 75 @ —
Prime Mess, ₱ barrel	19 00 @19 50	19 50 @22 00
BEEF—Plain mess	11 00 @12 00	10 50 @11 50
LARD, in trcs. & barrels, ₱ lb	12¼@ 13¾	12½@ 13
BUTTER—State, ₱ lb	24 @ 34	24 @ 36
Western, ₱ lb	16 @ 34	14 @ 34
CHEESE	4 @ 13½	4 @ 13¾
BEANS—₱ bushel	1 50 @ 2 30	1 30 @ 2 25
PEAS—Canada, free, ₱ bu	1 15 @ 1 18	1 18 @ 1 22
EGGS—Fresh, ₱ dozen	27 @ 32	28 @ 32
POULTRY—Fowls	9 @ 18	9 @ 18
Turkeys—₱ lb	11 @ 18	10 @ 18
Geese, ₱ pair	1 12 @ 1 87½	1 25 @ 2 00
Geese, ₱ lb	9 @ 15	8 @ 13
Ducks, ₱ pair	50 @ 75	55 @ 80
Ducks, ₱ lb	14 @ 19	8 @ 16
WOODCOCK, per pair	50 @ 60	— @ —
CHICKENS, ₱ lb	13 @ 20	13 @ 18
GROUSE, ₱ pair	95 @ 1 12	80 @ 1 25
PARTRIDGE, ₱ pair	50 @ 1 12	50 @ 1 00
DUCKS, Wild, ₱ pair	35 @ 1 50	30 @ 1 25
QUAIL, trapped, ₱ dozen	2 50 @ 3 50	1 40 @ 2 50
HARES, ₱ pair	60 @ 75	60 @ 75
RABBITS, ₱ pair	35 @ 50	40 @ 50
VENSION, ₱ lb	13 @ 17	11½@ 18
TURNIPS ₱ bbl	75 @ 1 00	50 @ 75
CABBAGES—₱ 100	2 50 @ 5 50	2 00 @ 5 00
ONIONS—₱ bbl	1 00 @ 2 50	1 00 @ 2 50
POTATOES—₱ bbl	75 @ 2 25	65 @ 1 75
SWEET POTATOES—₱ bbl	1 25 @ 2 25	1 25 @ 2 25
BROOM-CORN	6 @ 11	— @ —
PEARS, per box	3 50 @ 4 00	3 50 @ 4 00
PEARS, ₱ bbl	3 00 @14 00	— @ —
GRAPES, ₱ lb	5 @ 9	3 @ 7
APPLES—₱ barrel	2 00 @ 3 50	1 75 @ 3 00
CRANBERRIES—₱ bbl	7 50 @10 50	7 50 @ 9 75
QUINCES, ₱ bbl	4 50 @ 9 00	— @ —
SQUASH, ₱ bbl	30 @ 60	— @ —
CAULIFLOWER, per bbl	1 50 @ 3 50	2 00 @ 6 00

Gold has been up to 117, and down to 113¾, closing

Dec. 13th at 114⅝, as against 114⅜ on Nov. 12th..... With the practical close of navigation for the season, produce movements have generally been on a restricted scale. The stronger range of ocean freights has also worked against the export business. The fluctuations in gold have also been against active dealings....Breadstuffs have been in less request for shipment, as well as for home use, and prices have been quoted lower and irregular. Toward the close, Flour, Wheat, and Corn were quoted weak. Rye, Barley, Peas, and prime Oats firm. The Barley market has been exceptionally brisk and buoyant. Malsters have been very free purchasers, and prices have advanced. The new Grain grading system at this port went into partial operation at the beginning of this month....Provisions have been quite active, and at the close held with confidence, in most instances....Cotton has been quoted lower, leading to more liberal transactions, in good part on export account ....Wool has been moderately sought after, and has been quoted firm. Desirable grades of Domestic have been offered with reserve....Hops have been in less demand, and at the close quoted cheaper. Export dealings have been recently quite limited....Hay and Straw have been in good request at advanced rates....Grass Seed has been very scarce, and held above the views of buyers, checking operations. Prime Clover has been wanted for export....Tobacco has been in fair demand at previous quotations.

Prices of Feed.

Bran, per ton	$18.00@$20.00
Middlings, per ton	22.00@ 24.00
Ground Feed, per ton	22.00@ 24.00
Linseed-oil-cake, western, per ton	45.00@ 46.00
Cotton-seed-cake, per ton	25.00@ 25.50
Chandler's Scraps, per lb	—@ —

Prices of Fertilizers.

Superphosphate of Lime, per ton	$25.00@$26.50
" Ammoniated, per ton	—@ 35.00
Pure Ground Bone, per ton	34.00@ 36.00
Bone Meal, per ton	40.00@ 45.00
Raw Bones Unground, per ton	25.00
Bone Black, per ton	30.00
Pure Raw Bone Phosphate, per ton	38.00
Dried Blood, (11@12 per cent ammonia), per ton	40.00@ 45.00
Fish Guano, per ton	20.00@ 25.00
South Carolina Phosphate, (fine ground), per ton	21.00
Niter Cake, (ground), per ton	25.00
Gypsum, Nova Scotia, ground, per ton	9.50
" In barrels, per bbl	1.25
Sulphate of Ammonia, per lb	4¼c.@5 c.
Chloride of Potassium, (muriate of potash), lb	3 c.
Nitrate of Potash, crude, per lb	8½c.
Nitrate of Soda, per lb	3½c.
Sulphate of Potash, per lb	1¼c.
Sulphate Soda, ground, per ton	$25.00
German Potash Salts, (30@35 per cent), per ton	25.00
Peruvian Guano, per ton	60.00
Leached Wood-ashes, Can. and N. Y., per bush.	17 c.@19 c.

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Nov. 22	9,012	86	1,648	25,542	37,707	73,995
Nov. 29	7,330	84	845	22,731	27,108	58,088
Dec. 6	8,910	79	995	22,968	33,034	65,686
Dec. 13	9,963	123	970	23,900	31,620	66,576
Total for 4 Weeks	35,205	372	4,458	94,841	129,469	264,345
do. *for prev. 5 Weeks*	49,051	523	11,238	154,351	158,915	374,078

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	8,801	93	1,114	23,710	32,367
do. do. *last Month*	9,810	104	2,247	30,870	31,783
do. do. *prev's Month*	10,273	94	2,803	31,212	23,588

Beeves.—The market has ruled somewhat irregular during the past month. The competition of cheap poultry, which has sold for about the price of beef, has kept prices from advancing, and at times has even depressed the market in spite of smaller receipts. The higher average which appears in our quotations, is due not to any real advance, but to a better quality of cattle offered, the receipts of Texans being light at the close of our report. The heavy receipts, 1,000 head over the last week but one, caused a dull market with a downward tendency of prices, sales being made only at a concession on the estimates of weights. Extra beeves of 60 lbs., but estimated at 59 lbs. per gross cwt., sold for 12¼c. Natives estimated at 57 lbs., sold for 12¼c. per lb., and 9c.@10c. on estimates of 55 to 56 lbs. per cwt. Texans sold at 7c. per lb. on estimates of 54 to 55 lbs. the cwt.

The prices for the past four weeks were as follows:

WEEK ENDING	*Range.*	*Large Sales.*	*Aver.*
Nov. 22	7½@13½c.	10 @11 c.	10½c.
Nov. 29	7 @13½c.	9½@11¼c.	10½c.
Dec. 6	7½@13 c.	10 @11¼c.	10¾c.
Dec. 13	7 @13¼c.	10½@12 c.	10¾c.

Cows.—The demand for good cows has been fair and steady, poor ones have been left unsold. The sales were at $55@$80 each. There is no call for poor cows.... **Calves.**—The market for calves has been easy, and prices tend downwards. The best bring only 10c. per lb. live weight. Milk calves, fair to good, closed at 8c.@9c., and grass calves at $8@$13 per head....**Sheep and Lambs.**—This stock has held its own fairly, and prices are fixed in accordance with quality. Poor to good sheep are selling at 5c.@6c. per lb. live weight; prime to extra bring 6¼c.@7c., and good lambs, 7¼c.@8c. As an instance of the loss occasioned by careless management, we cite the case of a lot of fair 80 lb. sheep, which should have brought 5¼c. per lb., but being so burry as to be difficult to handle, they brought only 3¾c., a loss of $1.60 per head. These burrs will doubtless stick in the owner's memory a long time ...**Swine.**—The market is very firm. The stock of hogs in the country has been overestimated, and many are being bought by western farmers to consume the corn crop, in localities where large numbers were shipped last year. The market closes firm at 9c.@9¼c. per lb. for dressed western, and 9¼c.@10¼c. for State and Jersey.

Remember
The Valuable Premiums.

See Page 33, and send to the Publishers for an Illustrated List of Premiums if you have not already received it.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

☞ **N.B.—The New Postage Law.**—On account of the new postal law, **which requires pre-payment of postage by the publishers,** each subscriber must remit, in addition to the regular rates, **ten cents for prepayment of yearly postage by the Publishers, at New York.** Every subscriber, whether coming singly, or in clubs at club rates, will be particular to send to this office postage as above, *with his subscription.* Subscribers in British America will continue to send postage as heretofore, for pre-payment here.

Remitting Money: — Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Grange Judd Company. Post-Office Money Orders** for $50 or less, are cheap and safe also. When these are not obtainable, **register** letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and *take his receipt for it.* Money sent in the above three methods is safe against loss.

Bound Copies of Volume Thirty-four are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the last nineteen volumes (16 to 34) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Speak a Word for the German American Agriculturist.—For 17 years past an edition of this journal has been issued in the German language for the benefit of the large number of our citizens who read only the language of Vaterland. It contains the engravings and all the principal reading of the English edition. Several pages devoted to the advertisements in the English edition, are in the German edition occupied by a special extra Department, edited by the Hon. Frederick Münch, a distinguished cultivator of Missouri, which gives it additional value to the German reader. The colored cover only is omitted from the German edition. Many of our subscribers take the German copy for their gardener or their workmen. Will our friends make this edition known to their German friends and neighbors? Having the advantage of the engravings of the English edition, it is larger, better, and cheaper, than it could be if published independently. Both editions are issued on the same terms, and clubs may consist of either edition, or a part of both.

The Paper and Its Cover.—Heretofore the *American Agriculturist* has been simply folded and stitched, and only a portion of the pages could be opened until the leaves had been cut. This year we send it out with the edges neatly trimmed, and it may be opened at any page. There are advantages in both plans, and to judge from the requests that have come to us, we have no doubt that the one now adopted, of cutting, will please a large number of our readers.—A word about the cover, which is not, as is most generally the case, the same for every month, and often for every year, but there is practically *a new cover every month,* as the large central picture, and the smaller ones in the corners, are *new each month;* they are upon timely subjects, and are designed and engraved with as much care as the illustrations upon the inside pages.

The N. Y. Horticultural Association.—There was once a Horticultural Society in New York City, and a quarter of a century ago it manifested considerable activity. It gradually grew weaker, and at last fell into the hands of those who talked it—if not to death—into so profound a sleep, that it has not moved for several years. It was probably to get around the fact that such a society is somewhere in a state of suspended animation, that the recently formed society took the name above given. A horticultural organization is so much needed in New York, that we may welcome it under whatever name it comes, and we are glad to know that some 70 names are already on the list, as members of a society for the promotion of horticulture. The officers are: President, John Henderson, of Flushing, L. I.; Vice-Presidents, George Such, of South Amboy, W. C. Wilson, of Astoria, James Paterson, of Newark, N. J., and Robert Parsons, of Flushing, L. I.; Recording Secretary, J. Davidson, of Brooklyn; Corresponding Secretary, Peter Henderson, of Jersey City; Treasurer, Isaac H. Young, of New York. These names indicate that there will be no lack of executive ability. Now let the patrons of horticulture do their share, and see that the Association is abundantly endowed.

A Convention of Short-horn Breeders met at Toronto, Canada, on the 1st of December. Breeders from nearly all the northern states and Texas were present. J. H. Pickerell, Esq., of Illinois, who occupied the chair, referred to the fact that more Short-horns had changed hands during the past year than in any previous one. He objected to too much consideration being given to "family breeding," and advocated the cultivation of the beef producing qualities of the stock in preference to mere pedigree. The Secretary, S. F. Lockridge, of Indiana, then read a communication on the subject of Coöperation, from the president to the Duke of Devonshire, president of the Short horn Association of Great Britain and Ireland, and his reply, and that of the Association through their secretary, promising interchange of publications and courtesies. The Treasurer, Claude Matthews, of Indiana, then read his report, showing a balance in the treasury of $187. On motion of Dr. A. C. Stevenson, of Indiana, a committee was appointed to revise the constitution. Much discussion took place upon the merits or demerits of close breeding, without any decided result. The Convention finally adjourned to meet at St. Louis, in Dec., 1876.

"Camp Life in Florida" is the title of a compilation by Chas. Hallock, of numerous papers on Florida, which have appeared in that excellent journal, "Forest and Stream," and issued by the publishers of that paper. It is full of the information needed by the sportsman or tourist who wishes to see something of Florida aside from the route of regular travel; it describes attractive portions of the state but seldom visited, and gives much information not to be found elsewhere. Its directions for camp and boat outfit, shooting and fishing "traps," guides, and other matters, are judicious, and with due regard to economy. A large share of the book is by our correspondent and friend, Al Fresco, and we are sure he knows all about such things.

Rifle-Shooting Notes.—The illustrated article last month seems to have met a popular want, and to have awakened not a little interest. Some tell us that though they had used a rifle almost a lifetime, for game, etc., they had never looked into the principles involved until they saw that article. We did not thus intend to open a "shooting department," but will cheerfully respond to any appropriate queries that we can. The following will answer several inquiries: 1st. The Remington and Sharp rifles of 44-100 vary a little in diameter, which is unfortunate, as the Sharp gun will not take the Remington bullet....2d. In using the "Bead" or globe sight, we think it preferable to sight over the top of it, depressing it to the lower edge of the bull's eye, or other object, and adjust the rear sight accordingly. This avoids uncertainty and dimness of vision often occurring when the bead just covers the object. For short range, or any off-hand shooting, the bead is preferable, but for long range, or shooting at rest, we prefer the "open bead" here shown, with a diameter of $^1/_{12}$ inch, which covers some 7 feet at 1,000 yards, but it is easy to bring the object in a line with the center of this opening. We tried a smaller opening, ($^1/_{16}$), but found it too small for cloudy days, and near sundown. Col. Wingate gives engravings of 21 different forms for the front sight, of which 15 are allowed at Creedmoor....3rd. As to powder, we have not sufficient experience to decide the relative value of different manufactures. We have tried samples of the *same* brand procured at different places, and found one to require 1 to 3 points more elevation than another, at 1,000 yards. Finding "Hazard's F. G. Kentucky Rifle powder" working well, we procured 5 pounds out of one lot, the most one can keep

OPEN BEAD.

without vitiating insurance, so as to have uniformity. A lad weighs every charge on delicate scales, turning with less than a tenth of a grain. This gives regularity, leaving only the wind and light to be calculated for at a regular distance. It is said that a variation of 1 grain weight (not kernel), will make a difference of 8 or 10 inches in elevation in 1,000 yards. Poured from a flask partly or wholly filled, giving it an equal number of shakings at each pouring, with the mouth downward, we have been able to *measure* many successive charges not varying more than 1/8 grain in weight....4th. A strong light often raises the apparent place of an object above its real place, so that in full sunlight one must aim one or two points lower, and raise again if clouds come up, or the sun goes down. By points, we mean minutes of a degree marked on the vernier, each 1′ corresponding to 2 inches for each 100 yards, as 20 inches at 1,000 yards, etc....5th. The Remington lock needs no spring to draw back the firing needle, or pin. It falls back of itself on opening the breech block....6th. Any one can endure the recoil of 90 to 100 grains of powder, and 550 grains of lead, quite easily if the gun be held *firmly* against the shoulder (not the arm), so that it gets no momentum. Bathing the shoulder in alcohol night and morning will soon remove bruises and toughen the muscles. We have known a shoulder thoroughly sore, all "black and blue," soon cured by the alcohol, and care in bringing back the gun firmly, without stopping the daily shooting. A shotgun heel-plate on the stock is far preferable to any fancy hollowing out or curving. The points left by the latter are always in the way in changing position. The worst recoil injury we ever saw was from one of these fancy points.

The New York State Dairymen's Association.—The Annual Meeting of the N. Y. State Dairymen's Association was held at Norwich, N. Y., on the 9th of December. X. A. Willard, president of the Association, opened the meeting by an address in which he referred to the great improvements which have been made in the process of dairying since 1848, and the considerable improvements that still need to be made. In this respect he instanced cleanliness as the one thing yet needful. He urged dairymen to raise their own cows; and by care in breeding to raise the production from 400 to 600 lbs. of cheese yearly per cow. He advocated the use of condensed milk in cities as a means of preventing the frauds and abuses in the city milk trade. Dr. Crafts advocated soiling, and thought that better care and feeding would increase the yield of cows at least 33 per cent. A. L. Fish thought soiling unprofitable except in time of drouth, or when food is scarce. Gen. E. F. Jones considered soiling as destructive to cattle. He advocated half soiling and pasturing. E. W. Stewart had soiled cattle for twelve years. The extra labor was only $75 for 45 head of cattle in a year. He described his new barn, octagonal in shape, with no interior timbers, and with concrete walls. Prof. Roberts showed that it cost in excess of food at least $32.72 yearly to heat the food and water of a cow in her stomach, while it could be heated by steam or coal for $7. He fed his cow 25 lbs. of hay, 7 lbs. of meal, and 2½ lbs. of bran daily. This high feeding, and the estimate of the cost of warming the feed in the cow's stomach, were considerably discussed. After some other remarks of no particular interest, the meeting was adjourned.

Give Name and Address in full!—Correspondents should understand that we wish to have the names and full addresses always, not for publication, as we publish no names or initials if requested not to do so, but that we may know from whom and from where the enquiry comes. For want of this knowledge it is sometimes impossible to give the information required, and sometimes we would rather reply by mail. Always give name and town, county, and state.

Catalogues.—Just as we go to press, the current of spring catalogues of dealers in Agricultural and Horticultural materials of all kinds, begins to flow in. We are obliged to omit a notice of those already received, until next month, and we hope that all our friends who intend to send us catalogues, will do so at the earliest possible day.

The American Agriculturist in New Zealand.—At the fair of the "Northern Agricultural and Pastoral Association," held at Oamaru, New Zealand, last fall, one of the citizens offered as a special premium for the best loaf of *home-made* bread the bound volume of the *American Agriculturist* for 1875. We do not know who was the winner of the prize, though the volume has been ordered and is on its way.

A Heavy Essex Pig.—"R. S. W.," Watsonville, Mich., sends a statement of the weights of an Essex pig, the carcass of which, after slaughtering, weighed 574 lbs., and after dressing, it weighed 540 lbs., losing only 34 lbs., or less than 6 per cent in offal.

FREE—FREE—For the "Hard Times."—No doubt many a Reader, in looking over the Engravings and Descriptions, (given in our Premium List, and referred to on page 33 of this paper), has felt a strong desire to have several of the good things there named. Well, we say in all candor, it is easy for almost any one to obtain one or more of them, *free of charge.* **First,** is there any doubt that each one of your neighbors would get hints, suggestions, and positive information enough out of a whole volume of this Journal, to abundantly repay him for the small subscription price, ($1.60 for a year, postage included)? **Second.**—Can not you easily tell him, and show him, and convince him of this? **Third.**—You have only to do this in a few or many instances, as the case may be, and in return for this, which will cost you no money, the Publishers will be happy to *present* you with one or more of the premiums, corresponding to the number of names sent. **Fourth.**—Over **16,000** persons have thus done, and are not you equally expert with most of the other 16,000? **Fifth.**—Every family you get to *reading* and *thinking* more, you directly benefit. The more there are of such persons in a neighborhood, the more intelligent and elevated will the whole society be. Thus, in extending the circulation of this journal, and receiving the premium article, you are literally working "*To do good and make money.*"—Try it now. State that you are working for a Premium, when you send in subscriptions. You will then have a premium credit for all names sent in between now and July 4th, 1876—and can take the premium whenever you desire it.

The English Wheat Crop.—The prospects of the fall sown wheat, in England, are very unfavorable. Much seed has rotted in the ground, in consequence of the cold, wet weather, and the sowing is very backward. The latest reports mention an improvement in the weather, but very dubious feelings as regards the next harvest. The markets are nevertheless lower, in consequence of heavy receipts but the Mark Lane Express says those who look for a continuence of low prices, are undoubtedly too sanguine.

The Little Washer.—Among the various contrivances for facilitating the labor of washing, are those in which a continuous stream of boiling suds is thrown upon the clothes, to percolate through them, and again be forced upon them; the boiling liquid continually circulating in this manner, cleanses the fabrics. The best thing of this kind we have tried, is the "Little Washer," made by Bissell & Co., Naugatuck, Ct., best not only in throwing a more copious stream, but because it can be used in any ordinary wash-boiler. Sufficient directions accompany the washer. With this, as with every washing machine we have yet seen, the much soiled parts need special attention.

The Western New York Horticultural Society will hold its 21st annual session in Rochester, commencing January 5th; all who feel an interest in the objects of the society, are invited to attend and participate in the proceedings. Contributions of fruits, especially new and rare varieties of value, and other objects of horticultural interest are solicited. The subject of making a state exhibition of fruit and horticultural objects at the Centennial Exposition, will come up for discussion. Several essays and addresses will be given on practical subjects. The annual fee, $1, entitles the member to the Transactions. P. Barry is President, and P. C. Reynolds, Secretary and Treasurer.

The New Jersey Horticultural Society.—The first annual meeting of this society will be held at New Brunswick, N. J., in Geological Hall, on the forenoon of the 20th instant. A number of papers upon different horticultural subjects are promised, and these, with the discussions which will follow them, indicate an interesting meeting. All engaged in any department of horticulture, whether commercially or as amateurs, are invited to be present, and to become members of the society.

The First Annual Exhibition of the Long Island Poultry Association was held at Brooklyn, N. Y., Nov. 30th to Dec. 3rd. The display of birds was excellent, and although not large, was more select and of higher general character than any we have previously seen. The Light Brahmas were a remarkably fine lot. In this class the $100 premium for the best cockerel was awarded to Philander Williams, of Taunton, Mass. McKeen and Hulick, of Easton, taking the second place. Smith & Brother, of Stony Brook, L. I., took the $50 premium for the best collection of poultry. The following first premiums were awarded: for Light Brahmas, J. K. Felch, Natick, Mass.; Dark Brahmas, D. C. Waterhouse, New Haven, Ct.; Partridge Cochins, Black Cochins, and La Fleche, P. Williams, Taunton, Mass.; Fancy Pigeons, J. Van Winkle, Greenville, N. J.; Brown Leghorns, Mrs. Johnson, Newtown, L. I.; Game Fowls, M. Goldie, Princeton, N. J.; White Cochins, J. J. Berry, Hackensack, N. J.; Grey Dorkings, H. Hales, Ridgewood, N. J.; G. P. Hamburgs, Crevecœurs, and Rouen and Aylesbury Ducks, Smith Bros., Stony Brook, L. I.; S. P. Hamburgs, G. White, Ridgewood, N. J.; Houdans, H. N. Grant, Tarrytown, N. Y.; G. S. Bantams, W. H. Pullis, Bay Shore, L. I.; S. S. Bantams, H. S. Magrane, Newark, N. J.; Muscovy Ducks, W. M. Tuttle, Speonk, L. I.; Pekin Ducks, E. H. Lawrence, Bay Side, L. I.; Bremen Geese and Bronze Turkeys, J. M. Rockwell.

Sundry Humbugs.

In the early days of the *American Agriculturist*, its pages contained only here and there an exposure of some especially glaring fraud; it was a novelty in journalism, and was associated with another novelty, the refusal to publish at any price advertisements not only of a fraudulent character, but those which were in other respects objectionable. The exposures of humbugs soon grew to such importance that they have been continued as a regular department of the paper, while the rule in regard to advertisements has been rigidly maintained. As this issue goes to a great number of new readers, a word of explanation will be timely. The sole object of these exposures is to warn the community, and especially the agricultural portion of it, against the various fraudulent schemes devised for getting their money without giving an adequate return; it would take too long to specify the various phases in which fraud appears, for it has more heads than the fabled Hydra, and comes under more disguises than Proteus. But whatever scheme that has unfair designs upon the pockets, the morals, or the health of the community, finds here an uncompromising opponent. When sure that a scheme is injurious to the public welfare, we do not hesitate to expose it, no matter if its object is claimed to be a benevolent one, and is on that account supported by the names of those in high positions. On the other hand, we are careful to hold up no one in these columns unless we have satisfactory evidence that he is entitled to a place here. It often happens that one who has had an unsatisfactory transaction with another writes to request us to show up the one with whom he had dealings, as a humbug; these columns can be used for no retaliation for private grievances; they are for the protection of the community against those who seek to prey upon it. That our exposures have been of vast benefit, and that the amounts we have saved the public may be counted by millions rather than by thousands, our correspondence gives ample assurance, and the letters of congratulation and encouragement we receive from all over the wide country, more than compensate for the annoyances to which our course subjects us. While the majority of sensible persons need only to be shown the fraudulent character of a scheme to make them avoid it, there is a large class we do not hope to benefit—those who want to be humbugged—the class of which Butler wrote two hundred years ago:

"Doubtless the pleasure is as great,
Of being cheated, as to cheat."

These exist everywhere, and no sooner recover from one singeing than they, moth like, are ready to fly at the flame again—a well known human weakness that has furnished our artist a subject for a head piece.

WALL STREET BOGUS BROKERS.

For a long time the *American Agriculturist* was the only journal that noticed the manner in which persons calling themselves brokers, were flooding the country with circulars, showing how easily large sums might be made by investing small amounts in stock gambling. Of late the New York daily papers have noticed the matter, and the vigilant Mr. Gaylor, Superintendent of the New York Post-Office, has notified the Stock Exchange that the "Saw-dust Swindlers" whose business is well nigh broken up by excluding them from the mails, have turned "put" and "call" brokers. The matter has now become so serious that it is thought that legislative

action will be asked to put a stop to this form of swindling....About the "cheekiest" thing in this line that we have heard of is the sending by one of these "brokers" of a telegraphic despatch to a gentleman in Kansas, who had before received circulars, but never had any dealings with the chaps, saying, "If you desire to invest we now have an opportunity on certain stock we believe sure to advance. Market active." For this precious bit of information the Kansas man had to pay $1.65, telegraph charges; he thinks "this is robbery," and we agree with him. He "feels like having his money back," a point on which we can give him no encouragement.

SERIOUS COMPLAINTS COME FROM CANADA.

in regard to the produce dealers in Chicago. It is stated that one Canadian lost a million, another $200,000, and another $130,000, and so on. Now it strikes us that a person able to accumulate either of these sums, should be able to hold his own against any Chicago or other "produce gambler," and we have no doubt that it would turn out that these very persons were taking a part in a heavy game, and lost. Had they made, we should have had no complaints of the Chicago produce dealers. The method of doing business in the Chicago produce market is not a matter that we can hope to change, nor can we upon assertions unsupported by evidence set down "the principal dealers in grain and produce as a set of gamblers."—Farmers in Canada, as elsewhere, should exercise caution in their dealings, and recollect that it is better to mourn over their produce than to mourn after it....Advertisements worded "the same with intent to deceive," are common; the wonder is that any one can be taken in by them. Not long ago a time-keeper in a gold case was offered for one dollar. Many were foolish enough to think that this was a proposal to send some kind of watch, and sent their dollars to receive only the cheapest kind of a sun-dial in a gilt paper case. A similar dodge in relation to

A SEVEN-SHOOTER

was practised by an enterprising youth near Cleveland, O. He sent out circulars far and wide setting forth "Allan's New Low-Priced Seven-Shooter," which was a "triumph of mechanical genius." It was "warranted to be as good after three years' use as when first purchased." On account of "improved facilities for making them rapidly and cheaply," the price was reduced to $1.50, or $13 a dozen. Orders came in freely, and when the purchaser received anything, it was a small bronze pea-shooter, into which, if seven small shot were dropped, they could be discharged in succession, by pulling the trigger. As the youth had been using the mails for a swindling operation, the case was put in the hands of a U. S. Marshal, who arrested him at a small farm-house with a rickety wood-shed for the "arsenal," and took him to the lock-up in Cleveland, where, at last accounts, he remained. He claimed that he sent all that he advertised, and if people expected a revolver at that price, it was not his fault. One can hardly conceive of any one foolish enough to expect any kind of a serviceable seven-shooter, revolving or not, at such a ridiculous price. Yet it is said that the orders poured in for them by "legions."

THE BUTTER COMPOUND

has now turned up in Connecticut. Ohio was not long ago the headquarters of the stuff, but its star, unlike that of Empire, wends its way eastward. If people would take a common-sense view of such things, they would not write to ask our opinion. The circular claims that butter undistinguishable from the true article can be made at a cost never exceeding four cents per pound. Now, if there were any truth in this claim, do you suppose that the makers of the compound would send out elaborate circulars entreating people to buy the compound, a box of which will make 100 lbs. of butter, at 50 cents wholesale? Not much. They would make the butter themselves. On 100 lbs. of butter costing 4 cents per pound, they would make from $20 to $25 at fair market rates, while by selling the compound, if it were *all* profit, they make only 50 cents. That tub won't hold water.

WORTHLESS AND PERNICIOUS BOOKS.

The number of concerns engaged in various parts of the country, in selling books that pretend to teach wonderful secrets, or which are really pernicious, is something wonderful. The catalogues show that the different shops have pretty much the same stock, though the names of some books may be changed. One of these books proposes to tell "how to make gold and silver from block tin. Also how to take impressions from coins."—A nice bait for would-be counterfeiters. "Mysteries of Love Making," and "How to Woo and How to Win" are titles of trash of which there are numerous other kinds. For the sum of 50 cents one can buy "How to Get Rich," the catalogue of the contents of which is most amusing reading. A long list of such works is offered, which, if not positively immoral, are useless, and in so far as they induce young people to believe that there is any other way of getting along in the world than by working, are injurious. These shops usually have an extra catalogue offering treatises on "Sexual Physiology," "Marriage Guides," and other works which parents would not willingly allow their children to read, and which are anything but useful to older people.

MEDICAL MATTERS,

as usual, form the bulk of our budget. Buffalo has long been a favorite locality for quacks. It has a Medical College, and a Medical and Surgical Journal. Yet, under the very noses of these, some of the most mischievous and unblushing characters, send out their circulars broadcast over the country. We some time ago exposed the trick of one of these fellows, one Abbey, who advertised all over the country, especially in "family" papers, a Prize Picture, the "Toll Gate," to be sent for a stamp. This picture is a card, upon one side of which is a rather poor puzzle picture, but on the other side—and that is the whole object of the thing—is the advertisement of a book couched in such language as to excite the fears and arouse the curiosity of young people of both sexes. Almost every possible thing that can happen, is set down as a symptom of a "secret cause,"..."which leads directly to the grave," and the whole story can be learned from the book, which is then of course the stepping stone to the fellow's medicines. The "Buffalo Sunday News," recently published Abbey's portrait as the "Prince of Buffalo Quacks," and gave him and his book a fearful scoring, though in a manner more forceful than elegant. * * * At last the "Buffalo Medical and Surgical Journal" goes for a quack, one Dr. Marshall, who has left the city and is flourishing in Kansas, as having been a Professor in The Medical College. Now why does not the Medical Journal show up another Buffalo quack, who is still more conspicious than either of these, and is able to buy up some journals by the page? It is hardly fair that all this should be left to us....Here is a remarkable document,

"THE BIG BONANZA,

what it is and what it isn't." And after reading a long rigmarole, we find that it is that unfortunate agent, electricity, which is the "magic healer,"—but it must be applied by the advertiser. We read of electricity "Antagonism is its basis. This arises from its acid and alkaline constituents."—"Constituents" of electricity is good—we shall next be taught about the compound constitution of heat.

GOT STUCK.

The publishers of a Maine paper send us a circular denouncing two quack medicine makers, as they have broken their advertising contracts, and warn "the public against buying the medicines they advertise." They ask us to pass the swindlers along. This is none of our funeral: we do not see that those who make promises to pay money, which they can not fulfill, are any worse than those who promise cures which they can not perform. But then it makes a difference as to whose ox is gored. We are at a loss to understand the logic which makes the medicines these chaps advertise any less good or bad, because the makers thereof did not pay their bills. This whole quack medicine business is one of the best things in the world for publishers, and others, to let severely alone. *We* do not lose any money by them, or receive any from them. None of them are rich enough to buy a line of advertising in this paper, cash down, let alone promises or contracts.

NOT IN OUR LINE.

A little the strangest advice that has been asked of us, is sought in a recent letter in which was something in a paper. The writer asks what kind of medicine it is; "it was sent to a lady to make her have a miscarriage; she took it, as directed; it made her very sick, but did not produce the desired effect. It was bought from Dr. —— in Philadelphia, two table-spoonfuls costs $2.50. He is selling a good deal of this medicine."—You quite mistake our calling, anxious man, if you suppose that we shall be accessory to *murder* in any form, by examining the stuff, or giving any advice about it. If the Philadelphia chap sent something to make "her very sick," it serves her right, but if he is in the trade of selling what you supposed the stuff to be, we can find a very quick way of clapping a stopper upon his criminal course. You probably think this looks rather rough in print. "Criminal" and "murder" are not pleasant words, but they are the only ones which describe the crime from which you have fortunately been saved.

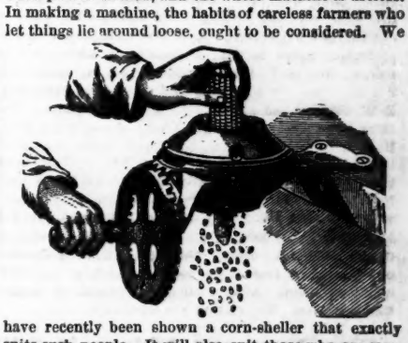
Concrete Houses.—"H.," McLean Co., Ill. In the *American Agriculturist* for December, 1874, we gave full descriptions with illustrations of a method of building concrete houses. Where stone cannot be procured, and only coarse sand is at hand, the latter may be used equally well, but the cost will be greater. In this case seven parts of sand may be used with one of cement. Before a house is built it would be well to experiment a little by procuring a barrel of the cement and mixing some of it with varying proportions of sand, say four, five, seven, or nine parts of sand to one of cement. The quality of the sand makes some difference. The dry mixture of cement and sand being wet with sufficient water to make a soft semi-liquid mortar, should be molded in a rough box and left to set. After it is dry, each sample should be broken with a hammer, and that which is hardest or the best, should be taken as the basis for the construction of the house. These houses are very warm and dry.

GOOD THINGS. — FREE. — Read about them on page 33, and if you have not a copy, send for our large Illustrated 8-page Descriptive List, supplied free to any one wishing it.

Feeding Coarse Hay, Marsh Hay, Salt Hay, Etc.—Important Article.—Prof. Atwater's article on the above topics, on page 10, is worthy of careful reading by every one at all interested in feeding stock. The non-scientific reader may have to study pretty closely, and read over the previous chapter, in last volume, but it will be worth all the effort required to fully understand the subject. Scientific investigations, fully confirmed by practical experiments, show beyond reasonable doubt, that a great saving, and corresponding profit, may be realized by a judicious mixture of feeding materials—just as the supplying of a few deficient elements to a soil, in the form of a little barnyard manure, or other fertilizer, will greatly increase the production of valuable crops. Read and understand the present and subsequent articles. Every farmer and stock-raiser, who has not had them, should get and read the chapters in the volume for 1875.

American Dairymen's Association.—The annual convention of the American Dairymen's Association, is to meet at Rome, N. Y., on the 11th to 13th of this month. It is announced that this is to be an important meeting, and a large attendance is hoped for. Arrangements for a representation of the dairy interests at the Centennial Exhibition are to be provided for.

A Cheap Corn-Sheller.—The ordinary corn-sheller is nearly always in the way. It is a top-heavy concern, worse to run over than a wheelbarrow, and when it is run over and upset, the handle or some other part is broken, and the whole machine is useless. In making a machine, the habits of careless farmers who let things lie around loose, ought to be considered. We



have recently been shown a corn-sheller that exactly suits such people. It will also suit those who are careful, but who have not much room for storing tools away, and it is exactly the thing for those who have but a small quantity of corn to shell. The illustration sufficiently describes it. It is made wholly of iron, and is durable. It is screwed on to a bench or a stool, and one may sit down to operate it. When out of use it may be hung up or placed on a shelf. It is called the "Home Corn-Sheller," is made by Livingston & Co., at Pittsburgh, Pa., and its low price will make it worth having, even to those who have a large sheller, but who sometimes want to shell a small quantity of corn.

Poland-China Swine.—"S. O. F.," Grey's Mills, Pa. The Poland-China hogs are said to have originated in Butler Co., Ohio, with a breeder named Magie, from a cross between Poland and China swine. Hence they are called Butler County hogs, by some, by others, Magie hogs, and by the majority, Poland-China, which is now the accepted designation. They have been largely crossed with the Berkshire, and in the majority of cases have been much improved thereby. They are a favorite class of hogs in the west, and doubtless, if carefully bred by a skillful breeder, might be brought to a fixed and valuable type. As they now are, they are variable in character, although when well fed they make a large, handsome hog.

Basket Items continued on page 33.

Bee Notes for January.

BY L. C. ROOT, MOHAWK, N. Y.

Of hives and frames there is an endless variety. I could not, if I would, touch upon the advantages or disadvantages of all. There are a few practical points that are essential, and if the hive you are using possesses them, don't change. The question of importance to beginners is, between the hanging and standing frame.

Fig. 1.—HIVE WITH SUSPENDED FRAMES.

Each has its advantages. After studying the subject with much interest, I fail to find any hive and frame that meets as many requirements as does the Quinby hive. For boxing or extracting honey, for adapting space of the brood-chamber to the size of stock, or for placing in winter quarters, I find no hive its superior. A hive large enough to hold a sufficient number of frames for extracting, or boxes for the honey that should be gathered by a strong swarm in a good season, must necessarily be too large to be placed in winter quarters. Hives with hanging frames must be placed bodily in the cellar, which is not only laborious, but they occupy too much space. The Quinby hive can be left on the summer stand, while the frames are packed away as described in November last. Figure 1 represents a hive with hanging frames, with boxes in place on top. This hive is a modification of the Langstroth, and is 12 in. wide, 12 in. high, and 20 inches long, inside measure. The frames hang on rabbeting at the top. The Quinby hive is shown at figure 2, with top, front, and one side removed, showing the management of the boxes. One top and one side box are displaced, to show the means of access from the frames. The box showing holes in the bottom, belongs on top of the frames, where a thin honey board has holes to match those of all the top boxes. The other box has a strip of glass in the end, with ¼ inch space at each side; this end is placed to the side of the frames. The hive is 19 in. deep, 27 in. wide, and 18 in. high. This gives room for 16 frames, when used for extracting, or boxes to contain 150 lbs. of comb. A frame to be practical, and adapted to the wants of the bees, must be made strong, and with no cross pieces. I am asked if a cross piece through the center, either horizontal or perpendicular, will not assist in securing straight combs. I answer no, and if it would, there are disadvantages in other directions. When such a piece crosses the frame either way, the queen does not readily cross it, but confines the brood to one side, and it is thus a decided hindrance to breeding.

Fig. 3.—FRAME.

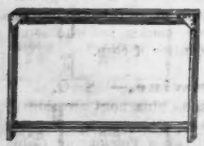


Fig. 4.—FRAME.

Others use a frame with but one strip across, and that about half way from the bottom. Quite recently a frame has been advocated with no bottom strip. This may have its advantages, but it is not a practicable frame to handle. For ease and convenience, it is often necessary to rest the weight of the frame and its contents on the corner. One will readily see that such a frame as shown in fig. 3, would not hold its form, and a tender comb must necessarily be broken. It would not even be safe to stand such a comb on the end by the side of the hive, an almost absolute necessity many times.

The material used for frames is often too light, frequently only $^{3}/_{16}$ or ¼ inch thick. The frame represented in fig. 4, is of the Quinby style, and is made of strips ⅞ inch thick, and well braced at the corners. Some of the best beekeepers not only make their frames strong in this way, but for further security they bore holes through the frames, and fasten the combs by pinning them in with thorns from the red haw. Hives do at times get turned over, or a frame may accidently be dropped, and if the frames are made strong, and the combs are well secured, there will be little danger of their being broken. As to the proper size and shape of frames, beekeepers will ever differ. Both extremes have their advocates. Those as shallow as 6 or 7 inches, are recommended by some, while others would have them 14 inches deep. The length will vary according to the depth. For warm climates, the shallow frames may be preferable, but for a northern latitude I would not recommend them. In this, as in all things, I advise avoiding extremes. A frame will nearest meet all requirements that is about 12 inches deep. The Quinby frame is 11½ by 19½ inches. Those who desire a smaller frame, should take from the length rather than the depth.

Nearly all writers advise thoroughly painting hives. So far as the good of the hive is concerned, and for looks, we can all agree as to the advantage, but considering the best possible results to be reached, I find objections. I am satisfied that well painted hives retain moisture that would otherwise, and should pass off through the pores of the wood. It has long been acknowledged that straw made the very best wall for hives, and unpainted wood more nearly resembles the porous nature of straw. A hive that is set up and fastened together with hooks or clasps, is less open to this objection than one firmly nailed together.

Each hive should be furnished with a good, substantial roof, thoroughly painted, and projecting at least two inches over the top of the hive, (fig. 5). It is all important that each hive, in all its parts, be exactly like every other hive in the apiary, as at times it becomes necessary to change frames, and what is taken from one hive should readily fit another.

A Colt with a Bad Habit.—"A. C. W.," Weymouth, Mass. The habit of running out of the shafts when the horse is being unharnessed, is taught by carelessness. The first attempt should have been corrected. When the habit has become confirmed, much patience and care will be required to break it entirely. A good plan would be to secure the reins to the buggy or wagon before you leave the seat, in such a manner that the horse can not go ahead. Then, as soon as you have dismounted from the wagon, unhook the traces, and secure the ends by passing them through the breeching, or tieing each trace in a loop. Then very slowly loosen the hold-backs and breeching from the vehicle, talking to the horse meanwhile, to restrain him from moving. He will now be loose, and the lines may be unfastened and slowly gathered up, while still talking to the horse. When this has been done slowly and deliberately, and every movement having been instantly checked up to this time, the horse should be taken by the bridle and led out of the shafts. If the shafts do not come out of the loops easily, ease them until they do. In a short time the horse will understand his business. The fault is not his, but his driver's, who permits him to go before he is ready.

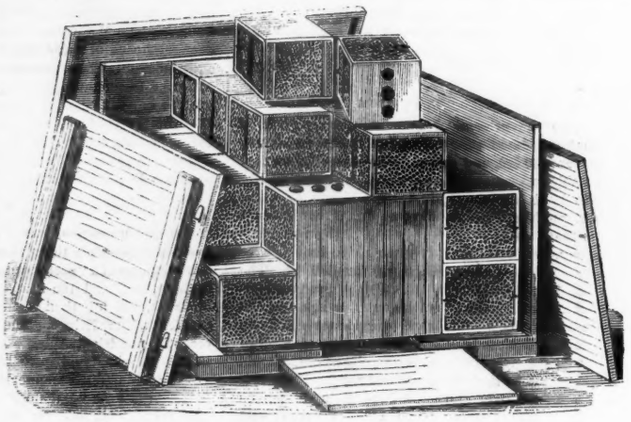


Fig. 2.—THE QUINBY HIVE WITH STANDING FRAMES.

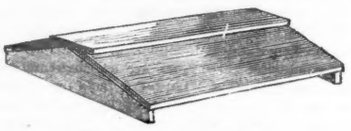
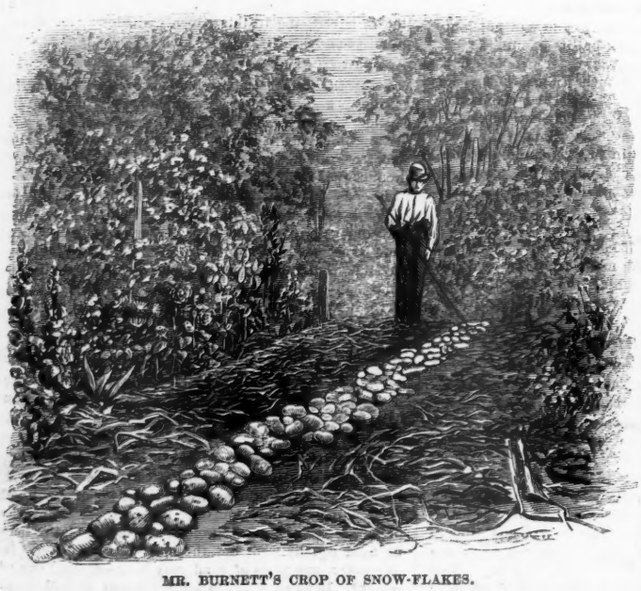


Fig. 5.—ROOF TO HIVE.

A Fine Crop of Fine Potatoes.

Mr. J. H. Burnett, of Onondaga Co., N. Y., last spring bought one pound of Snow-flake potatoes, of B. K. Bliss & Sons; they were cut into eyes, planted in good garden soil, without extra manure, and with the same cultivation as other potatoes. When he came to dig them, he was so much surprised at the result that the earth was carefully removed and the potatoes left just as they grew. The crop was kept on exhibition in this manner for a day, and was visited by a large number of farmers and others, and a photograph was taken, from which the engraving was made. One end of the row was partly shaded by a grape vine, and the yield less, but according to Mr. B., the potatoes elsewhere were remarkably even, and in such a solid mass that there was no room for a jack-knife between them. The crop weighed 60 lbs. 9 ozs.



MR. BURNETT'S CROP OF SNOW-FLAKES.

A Farm House Costing $3,000.

BY S. B. REED, ARCHITECT, CORONA, LONG ISLAND, N. Y.

This plan will be recognized as comprehending the general characteristics of those given in the *American Agriculturist* for Oct. and Nov., 1875. It is designed to be constructed of similar materials, with a like variety of pleasing and decided outlines,

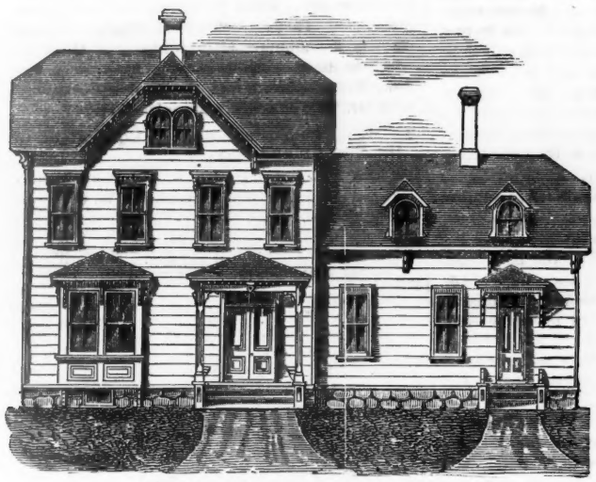


Fig. 1.—ELEVATION OF FARM HOUSE.

and to give an equal amount of accommodation and convenience. The division and arrangement of the several parts, however, are entirely changed, being especially intended to meet the requirements of a location having a *western* frontage. Location is an important consideration, involving many questions of adaptation, that should always guide to the selection of such a plan as will express a natural fitness for the situation, and truthfully indicate its purpose....**Exterior,** fig. 1. Only two feet of the foundation walls are exposed to sight, which brings the frame work of the building quite near enough to the ground. The surface of the earth surrounding such buildings, should have a grade of *at least* ½ inch to the foot, for the distance of 50 feet in every direction, to insure the turning away of all surface water from the walks and grounds. Another good result derived from such grade, is the additional altitude given to the building, imparting a much better appearance. The general outlines of the elevation are very simple, devoid of all pretentious ornamentation. The wide frontage, the large and numerous openings, and ample roofs, are each expressive of frankness and hospitality, eminently befitting the home of the farmer. The front Porch is unusually wide, and arranged to have large columns, and stationary seats at either side. The Bay Window has square projections, instead of octagonal, which are equally appropriate in this case, and less costly. The Cornices of the principal building project 20 inches,

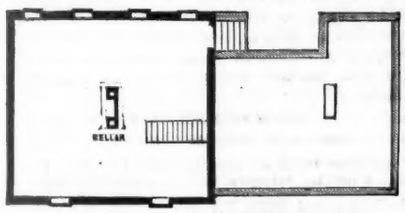


Fig. 2.—PLAN OF CELLAR.

and those of the wing 16 inches, and both are provided with scroll sawed trusses. The chimney tops are large and heavily capped. The same general finish, as is shown on the front, is put on the sides and rear, so that the building presents an equally complete and satisfactory appearance from every direction. Buildings of this character should be set back from the street line at least 50 feet—150 feet would be much better—to give room for trees, shrubbery, and walks....**Cellar,** (fig, 2). The plans provide for a cellar under the principal building only, which gives a clear space of 22×25 feet. If desired, the space beneath the wing may be included at an additional cost of $65. The excavations for the cellar in the earth, is 3 feet 8 inches deep, this allows the foundation walls to be 7 feet high. The earth thrown out is to be graded around the building to the hight of 1½ foot, thus leaving two feet of the foundation exposed on the outside. Country houses are frequently set so low down, as to be a matter of regret ever afterwards. There are constant accumulations of dust, and other matter, caught and held by the shrubbery and grasses, so that there is soon discovered a seeming growth of the earth upward around the house, and immediate grounds, making it impossible to adapt the grades that are desirable. It is far better that foundations are a little too high than too low, for when too high, the approaches can easily be raised at any time, with a few loads of earth; but when too low, there seems to be no cure, except to raise the entire building. — The Foundation walls are designed to be constructed of broken stone, laid in coarse mortar, as more particularly described on page 372, Oct. *American Agriculturist*....**First Story,** (fig. 3). Hight of ceilings 10 feet. Entire floor measurement 1,206 square feet, affording ample space for good sized apartments. The several divisions have especial regard to comfort and convenience. The Front Hall, or reception room, is nearly square, of good dimensions, is entered from the front porch through double or folding doors, and adjoins the parlor, and living-room, and contains the principal stairs. The Parlor is unusually large, is provided with windows in its sides, and has stucco cornices and centers in its ceilings, with an arched finish in the bay window.—The Living or Dining-room is commodious, pleasantly situated, with outlooks front and rear, and is easily accessible all around. The Family-room is large, connects with the dining-room and parlor, and is intended as a sitting or sewing-room. If occasion require, this room might be used as the bed-room of an invalid.—The Work-room, or Kitchen, is conveniently arranged to have a range, boiler, pump, sink, wash-tubs, and pipes for cold and hot water, and adjoins the dining-room, a large pantry, and a rear entrance door, and has a private stairway leading to the second story, with a closet underneath. The Pantry is of ample dimensions, is conveniently arranged with shelving, and has a zinc wash-tray, with cold and hot water-pipes, and adjoins the kitchen, dining-room, and a china closet. The latter is useful for storing wares not required daily.—The rear shed is paved, and the cellar doors are constructed as described on page 373, October *American Agriculturist*....**Second Story,** (fig. 4). Hight of ceiling 9 feet in main building, and 8 feet in wing. Floor measurment 1,276 feet, divided into 8 good sized rooms, besides halls, closets, and stairways. The principal hall connects with each chamber in main building, and one room and passage in wing. The door between principal hall and wing-passage, may be closed at any time, cutting off communication at pleasure. The side or "breast" walls in the wing, are vertical 3 feet, and are continued upward at an angle of 45° to the ceiling, thus securing sufficient head-room. The bath-room is exactly above the kitchen, and contains a tank, bath-tub, and seat-closet, with pipes for cold and hot water....**Attic.**—The stairs to this are over the first flight, and are designed to be neatly ceiled in with 4½ inch beaded ceiling boards, with a door at the foot. Double windows in each gable, admit sufficient light, and afford ventilation....**Remarks on Construction.**—An insight into the character of this plan, is best had by carefully considering the materials and cost in the estimate below. We would urge the importance of good methods and workmanship in construction, without which all materials, however good or sufficient, can never produce good results. The old maxim, "whatever is worth doing at all, is worth doing well," especially applies to building a home in which one is to spend a lifetime. This does not imply extravagance in any sense, only demanding such *careful and intelligent application of the ordinary rules of construction*, as shall insure substantial work, that will not be a continuous source of anxiety and expense. Any one of ordinary intelligence, should be able to generally superintend the operations of the mechanics employed in constructing a farm-house. The following *points* are of the greatest importance. Carefully watch that the foundation walls are substantially laid; and accurately leveled on their upper surfaces, so that the doors shall not strike the floor or carpets in opening, nor the tables, chairs, [or other furniture be obliged to stand on three legs. The frame-work when raised should be plumb, so that all work on or in the building can be cut square, and applied without tedious fitting. The siding should be thoroughly "seasoned" in the open air before using, and carefully applied with close joints, and well nailed. The edges of all water-tables, corner boards, and window frames should be painted *before* setting. The shingles should be carefully laid, breaking their joints at ⅓ of their width, and double nailed. The flooring should be dry, close laid, and nailed with two nails to each beam. The partitions should be set with studding of selected widths; and their angles or corners should be anchored firmly together, to prevent the walls from cracking in those parts when finished. The chimneys should be carefully constructed; all joints between the brick-work should be surely filled with mortar, to prevent sparks from passing through to the frame-work. All mortar for plastering should be properly mixed, and allowed sufficient time, (at least one week), for the thorough slacking of the lime, and a complete permeation of its caustic properties. Thin coats of plastering are better than heavy ones. A mortar that does not crack in setting or drying, is sure to be good. The interior wood finish should not be commenced until the plastering is completely dried out, and all loose mortar is removed from the building. All wood work usually painted

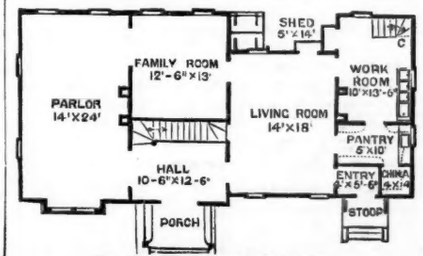


Fig. 3.—PLAN OF FIRST FLOOR.

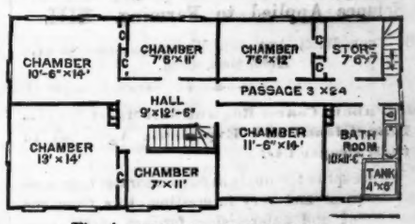


Fig. 4.—PLAN OF SECOND FLOOR.

should be primed as soon as in position. For more explicit remarks and sundry suggestions on painting, see page 212, June *American Agriculturist*, 1875.

Estimate of Materials and Cost:

110 yards Excavation, @ 25c. per yard	$ 27.50		
1371 feet Stone Foundation, @ 15c. per foot	205.65		
3,000 Brick, (furnished and laid), @ $15 ₱ 1000	45.00		
46 feet Stone Steps, Sills, and Coping, @ 30c. per ft.	13.80		
1,030 yards Plastering, complete, @ 35c. per yard	360.50		
5713 feet Timber, @ 2c. per foot	114.26		
viz. 1 Sill, 4x8 in. x 186 ft. long.	2 Girts, 4x8 in. x 25 ft. long.		
6 Posts 4x7 in. x 21 ft. long.	57 Beams, 3x8 in. x15 ft. l'g.		
3 Posts 4x7 in. x 14 ft. long.	36 Beams, 3x8, in. x13 ft. l'g.		

1 Tie, 4x6 in. x 256 long.	24 Beams, 3x8 in. x 11 ft. l'g.
1 Plate, 4x6 in. x 136 ft. l'g.	4 Valleys, 3x8 in. x 20 ft. l'g.
24 Rafters, 3x5 in. x 16 ft. l'g.	
100 Joist, 3x4 inches x 13 feet long, @ 18c. each	$ 16.00
300 Wall Strips, 2x4x13, @ 13c. each	39.00
Materials in Water table and Cornices	50.00
300 Novelty Siding Boards, 9½ in. @ 28c. each	84.00
4 0 Shingling lath, @ 6c. each	24.00
69 bunches Shingles, @ $2 ₱ bunch	138.00
84 feet Gutters, 133 ft. Leaders, and Porch Roofs, 10c. per foot	35.10
355 Flooring, 9½ x 13 @ 28c. each	99.40
Porch and Hood complete	75.00
Stairs complete, $90; Bay Window, complete, $60	150.00
20 Windows, complete, @ $10 each	200.00
6 Cellar Windows, complete, @ $6 each	36.00
4 Dormer Windows, complete, @ $20 each	80.00
32 Doors, complete, @ $10 each	320.00
1 Cellar door and Hatchway doors	20.00
Shelving and hooks in closets	20.00
2 Marble Mantels and 4 Shelves with trusses	75.00
Range and Plumbing, complete	215.00
Nails, $25; Bells, and Speaking Tubes, $20	45.00
Painting, $200; Cartage (1 mile) $35	235.00
Carpenter's labor not included above	250.00
Incidentals	26.75
Total cost, complete	$3,000.00

Experiments with Winter Wheats and other Grains.—Fertilizers.

We have before us a circular in which are set forth the results of a series of experiments made by David Landreth & Son, the well known seed growers and dealers. These experiments were made as it would seem, to test the virtues of what is known as Prof. Ville's complete manure, consisting of superphosphate of lime, muriate of potash, sulphate of ammonia, and sulphate of lime, mingled in certain proportions, as well as the hardiness and productiveness of several varieties of wheat. The first series of experiments was made with the Clawson wheat, sown upon 21 plots of 1/16 of an acre each, at the rate of half-a-bushel to the acre. These experiments were a failure, the fertilizers showing very little effect. What results were obtained are not given, any further than this meager statement. A second series is given in which, while there are abundant and full accounts of the appearance of the plants, there is no information as to the quantity of the crop, excepting that the average yield of 27 plots, sown at the rate of 2½ lbs. of seed per acre, of different varieties upon each plot, was at the rate of nearly 38 bushels per acre. The Clawson wheat was the best, and yielded at the rate of 42 bushels per acre. The seed was sown in drills 16 inches apart. Some experiments with spring wheat, as might have been expected in that latitude, totally failed. With barley of several varieties sown, one known as "Oregon," produced 48 bushels per acre, while no others produced more than 33 bushels. Of oats several varieties were sown, at the rate of 44 lbs. to 64 lbs. per acre. The Probsteier oats yielded 71 bushels per acre; Holbeck's pedigree oats, 63 bushels, and a winter variety, known as Virginia winter oats, produced 649 bushels upon 11 acres. These experiments would have been of much more practical value, had more detailed information been given as to the yield and character of the grain, the character and condition of the soil, the date of sowing and harvesting, and less of the color and appearance of the foliage, which is quite immaterial in a practical point of view.

Science Applied to Farming.—XIII.

By Prof. W. O. Atwater, Wesleyan University, *Middletown, Conn.*

More about Coarse Bog and Salt Marsh Hays—How Science and Experience Agree as to their Proper Use.

We are quite fortunate at our Laboratory, in having frequent and very interesting visits from the intelligent and enterprising farmers of this section. One of them, Mr. W., who, though Secretary of an active farmers' club, modestly forbids the use of his full name, was in recently, and reported his experience in using marsh hay and cotton-seed meal for his stock. He and his father before him have for years cut a good deal of coarse hay from low, marshy land too wet to plow. They formerly wintered their young cattle on this hay, but Mr. W. has concluded that it is not profitable. A steer would go into the stable in the fall weighing 800 lbs., and come out in the spring 25 or 30 lbs. lighter. Indeed, his cattle generally did poorly on such fodder. Dissatisfied with this, he has tried mixing cotton-seed meal with the marsh hay, and with most satisfactory results. His cattle like the mixture, thrive well on it, look sleek, their hair lies down smooth, and they come out in the spring in excellent condition. He feeds his cows 2 quarts per day each, of cotton-seed meal, and all the hay they will eat. They give as much milk as they would from the best upland hay, and the milk yields as much, and, in Mr. W.'s opinion, better butter.

That Mr. W.'s plan works so excellently, is to be expected, because it is rational and scientifically sound. The addition simply makes his coarse lowland hay as good as he can grow on his best uplands, at a small cost. And many other farmers do, and thousands more might do the same thing.

What Ingredients do Cattle Need in their Food—What do the Poor Hays Lack, and how Shall they be Supplied.

As the result of years of careful experimenting in the agricultural Stations, and of the best farming experience, calculations have been made of the amounts of food ingredients which will ordinarily be needed and economically used by various animals, as oxen, cows, horses, sheep, according as they are kept at work, or to yield milk, or to be fattened. For instance, it is believed that a fair daily ration for a milch cow would contain for each 1,000 lbs. live weight, about 15½ lbs. of digestible organic substance, consisting of not far from 2½ lbs. albuminoids, 12½ lbs. carbo-hydrates, and about ½ lb. fat. This accords, indeed, quite perfectly with our common experience. We all know that young succulent grass and the finer quality of upland hay, are excellent for producing milk; while from medium or poorer hay alone, the best yield cannot be obtained. Now let us study the composition of these foods in the table below:

Table 21.

KINDS OF FODDER. 100 Pounds Contain	Water.	Mineral Matters.	Organic Substance.	Of Organic Substance is digestible		The digestible organic substance consists of:	
				Albumin-oids.	Carbo-hydrates	Fats.	
COARSE FOODS.							
a.—Marsh Hays. *Salt Hay.*	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Better quality mixed	8.2	7.1	84.7	45.9	3.4	41.6	0.9
Black Grass	8.7	5.2	86.1	47.6	3.9	43.8	0.8
Rush Salt Grass	8.6	6.7	84.6	47.6	2.1	45.0	0.6
Coarse Salt Marsh Grass	15.9	10.4	73.7	39.7	2.2	35.7	0.8
Fresh "Meadow" Hay.							
Bog Hay, cut in June	7.4	6 3	86.3	45.6	4.4	40.5	0.7
Bog Hay, cut in August	8.2	5.5	86.3	47.4	3.1	43.5	0.8
b.—*Upland Hays, Straws.*							
Best Upland Hay	16.0	7.7	76.3	54.5	9.2	43.1	1.2
Superior Upland Hay	15.5	7.3	77.2	52.0	8.3	42.6	1.1
Medium quality Hay	14.3	6.2	79.5	47.4	5.4	41.1	0.9
Poor quality Hay	14.3	5.0	80.7	38.8	3.4	34.9	0.5
Oat Straw	14.3	4.0	81.7	39.9	1.3	37.4	0.6
Winter Wheat Straw	14.3	4.6	81.1	33.1	0.8	31.9	0.4
Young Grass, (green)	77.5	2.1	20.4	14.0	2.2	11.5	0.4
CONCENTRATED FOODS.							
Wheat	14.4	1.7	83.9	76.	11.7	63.1	1.2
Indian Corn	14.4	1.5	84.1	71.0	8.4	57.8	4.8
Peas	14.3	2.4	84.3	73.6	22.0	49.9	1.7
Field Beans	14.3	3.1	82.4	68.0	23.0	43.6	1.4
Potatoes	75.0	0.9	24.1	23.0	2.1	20.6	.3
Turnips	92.0	0.7	7.3	6.5	1.1	5.3	.1
Brewers' Grains	76.6	1.2	22.2	18.8	3.9	9.5	0.4
Malt Sprouts	8.0	6.8	85.2	58.1	18.4	38.0	1.7
Wheat Bran	13.1	5.4	81.5	51.9	10.9	37.6	3.4
Linseed Cake	11.5	7.9	80.6	60.7	23.8	29.0	8.9
Cotton-seed Cake (decort'd)	10.1	7.7	82.2	55.7	26.8	17.0	9.9
Western Middlings	12.7	2.1	85.2	71.7	8.4	61.3	2.0
Western Shipstuff	11.8	2.3	85.9	67.8	8.7	57.1	2.0

(See December Paper for explanation of above figures.)

From the above table the following is deduced by simple calculations:

Table 22.

Fodder for Milch Cows, 1,000 lbs. live weight. Rations below contain	Organic Substance in digestible form.	The digestible Organic Substance consists of:		
		Albuminoids.	Carbohydrates.	Fats.
	lbs.	lbs.	lbs.	lbs.
Calculated Ration	15.5	2.5	12.5	.4
110 lbs. Young Grass	15.4	2 4	12.6	.4
30 lbs. Superior Upland Hay	15.6	2.5	12.8	.3
30 lbs. Medium Quality Hay	14.2	1.6	12.8	.3
30 lbs. Early Cut Bog Hay	13.7	1.3	12.2	.2
30 lbs. Better Salt Hay	13.8	1.0	12.5	.3
30 lbs. Coarse Salt Grass Hay	12.	.8	11.0	.2
40 lbs. Coarse Salt Grass Hay	16.	1.1	14.6	.1
35 lbs. Early Cut Bog Hay	15.9	1.5	14.3	.2

These figures indicate very plainly the essential difference between the young grass or superior hay which will, and the poorer hay which will not, keep stock in good condition, and enable cows to give a full yield of milk. The 110 lbs. of young succulent grass, or 30 lbs. of superior hay, supply as much of digestible material as a whole, and as much of each of the ingredients as the animal needs. 30 lbs. of any one of the poorer hays supplies only a little less, while 35 lbs. early cut bog hay, or 40 lbs. coarse salt hay, if the cows could digest so much, would furnish more material than they need.

What then do the Poorer Hays Lack?

It is evidently not the carbo-hydrates. They furnish nearly as much of these as even the young grass does. They are deficient in the fats, and especially in the albuminoids. Notice how these decrease in the above table as we go from the better down to the poorer hays. Our figures then accord with Mr. W.'s experience in saying that

To Make Coarse Marsh Hays Equivalent to the Best Upland Hay,

we must add materials rich in digestible albuminoids and fats. For this purpose Mr. W. uses cotton-seed meal. Suppose now that his cows weigh 1,000 lbs. each, and each one eats 30 lbs. of hay and 4 lbs. of cotton-seed meal per day. They will consume digestible substance as follows:

	Organic substance.	*Albuminoids.*	*Carbohydrates.*	*Fats.*
In 30 lbs. bog hay	13.7	1.3	12.2	2
In 4 lbs. cotton-seed meal	2.3	1.2	.7	4
In whole daily ration	16.0	2.5	12.9	6
In 30 lbs. sup. upland hay	15.6	2.5	12.8	3

So our chemistry says the coarse hays with the cotton-seed meal ought to be, and experience testifies that they are, equal to the best hay. Suppose we were dealing with the better quality of salt-marsh hay, and wished to use it for wintering young stock, oxen not working, or dry cows, for which medium or poor hay would suffice. We have:

	Organic substance.	*Albuminoids.*	*Carbohydrates.*	*Fats.*
In 30 lbs. better salt hay	13.8	1.0	12.5	3
In 2 lbs. cotton-seed meal	1.1	.6	.3	1
In whole ration	14.9	1.6	12.8	4
In 30 lbs. medium hay	14.1	1.6	12.3	3

Here 2 lbs. of cotton-seed meal, added to 30 lbs. of better quality salt hay, makes it equal to 30 lbs. medium upland hay. At this rate 133 lbs. of cotton-seed meal would suffice for a ton of salt-marsh hay. And about 267 lbs. would be needed for a ton of early-cut bog hay. Cotton-seed meal costs about here from $1.80 to $2.20 per 100 lbs. At $2 per cwt., the 267 lbs. needed to make a ton of good bog hay equal in composition to a ton of the best upland hay, would cost $5.33, and the 133 lbs. needed to make the salt hay equal to medium hay, would cost $2.66.

Mr. W. is getting into the way of selling his best hay and using the poorer hay on his farm. When good hay brings $30, or even $15 to $20 a ton, it is easy to see why he believes so thoroughly in cotton-seed meal.

Other nitrogenous foods would of course do in the place of the cotton-seed meal. Table 21 above gives the composition of some, such as peas, beans, malt-sprouts, etc., from which it is easy to calculate the proper proportions to be used. But let it be remembered that these figures only represent general averages, and in the nature of things cannot be absolutely correct for any special case. Their chief use is for general indications rather than for specific calculations. Some allowances, learned by care in practice, are needed by the variation in quality of hay, difference in animals, etc., but the general principles set forth are of quite practical importance to all breeders of animals.

Would not Potatoes or Corn-meal Suffice, Instead of the Highly Nitrogenous Foods?

In Walks and Talks for last month, the writer thinks I "will allow him to add" corn-meal to my "prescription" for mixtures to be used with poor hays and straws. Certainly, only these "prescriptions" are not mine. They are given by men who have devoted years upon years of time, and thousands upon thousands of dollars of money, to the special study of these questions, by feeding experiments. And they say that in these cases the nitrogenous foods are more economical than the carbonaceous corn-meal, etc. Still, when the former can not be had, the latter may often be used with profit.

Exportation of Cattle for Beef to Great Britain.

This is destined to become an immense and highly profitable branch of business, as soon as arrangements are made for properly conducting it. The first of these, we think, should be the building of suitable steamships for the sole purpose of transporting cattle across the Atlantic. The model of such we leave to the shipwright; but in passing would say, that the greater the breadth of beam in proportion to the length of hull, the more comfortably and economically the animals could be carried. The present class of freight and passenger steamships sailing from New York and other Atlantic ports, are entirely too sharp built and narrow for the profitable transportation of cattle.

In addition to an extra breadth of beam, we would make the ship somewhat wall-sided, as this would greatly tend to prevent rolling, which is a far more wearing and fretful motion to animals on a rough ocean, than that of pitching fore and aft.

As live stock can be had in any quantity in America for transportation to Europe, the largest class of vessels may be built with a perfect certainty that they will always find plenty of freight at good paying rates. No country abroad can successfully compete with us in the breeding and rearing of all sorts of improved domestic animals, we can therefore nearly monopolize the British market; for it is a superior quality of live stock which is most wanted there, and which not only commands the highest prices, but is invariably taken in preference to inferior sorts.

The few shipments hitherto made to Great Brittain of cattle for beef have been so ignorantly and imperfectly conducted, as to result oftener in a loss rather than a gain. If proper arrangements are now made, they may be transported for two-thirds to perhaps one-half the present rates of freight, and still give the ship owners a fair profit on the transportation. This would enable the American farmer to offer his animals in the foreign market at a comparative lower price, and thus more rapidly increase the demand for them. Another great advantage would ensue from adopting improved methods of shipment, and that is, the animals might gain in flesh during the whole voyage rather than lose, as they now generally do, and this on precisely the same kind of food, and at exactly the same cost.

Great Britain and Ireland have been paying a terrible price for many years past on the importation of cattle from the continent of Europe, for it is these which have brought over the fatal diseases that have destroyed so many of their herds, and rendered cattle purchasing from abroad, as well as breeding and rearing at home, so hazardous and unfortunate. The losses from these foul fatal diseases may be reckoned up in a *single decade* at *millions* of *pounds sterling*. From America the United Kingdom would have nothing to fear; our cattle are healthy, and will be kept so. This consideration alone would enable us to obtain the preference in the British market, and ensure us quick and profitable sales for any number not only of beef cattle, but of improved domestic animals of all kinds, that we might please to export.

Mules vs. Horses for Two-wheeled City Carts or Trucks.

We notice that some of the mule-breeders of the west are recommending mules for use in two-wheeled city carts and trucks, in preference to the horse. About twenty years since, being induced to try them for our own city cartage, we selected some of the largest we could find for this purpose. They ran 16½ to 17 hands high, and extra heavy bodied. We used them carefully and faithfully for several years, but were at last compelled to give them up, as far less suitable and enduring for this sort of work than horses.

There were two essential reasons for their failure with us in two-wheeled carts. They were not heavy and compact enough in body to stand the rough jolting and swaying from one side to another of the cart shafts, when a wheel fell into a deep rut or hole, or had to pass over some obstruction in the street. Another difficulty was found in the fact that their feet were not sufficiently broad to clasp the round-topped cobble stones of a city pavement, to enable them to pull their load easily; they would often slip from the tops of the stones as they set them down, which added no little to the fatigue of their work, and both sprained and lamed them.

Mules are generally tougher than horses, can endure worse treatment, and probably thrive on a coarser quality of food. They are also longer lived and less liable to disease. Harnessed to four-wheeled vehicles, working on smooth-paved streets, or McAdamized or ordinary country roads; also for the general purposes of the farm, canal boat towing, under the pack saddle, etc., they are more economical than the horse, and for such usage cannot be too highly recommended.

How to Get Eggs in Winter.

We will not say that the farmer who leaves his poultry to roost in the apple tree at the corner of the barn, and to pick up their living at the pigs' trough and in the barnyard, may not occasionally get an egg in winter. But as a matter of fact their is on most farms a great dearth of eggs from November to March. With a warm shelter, and suitable feed, pullets that begin to lay in the fall will continue to lay through the winter. It is mainly a question of feed. The staple feed is Indian corn, especially in the west, because it is the most plentiful and the most convenient. It furnishes plenty of fat, and keeps up the heat of the fowls, but is poor in albumen and the phosphates. They want a variety of grains and vegetables, and, to do their best, one feed daily of warm cooked meal and vegetables. Most farmers have milk, and if this can be added, it will be all they need. Butchers' scrap cake is good, and may safely be kept in the poultry yard where the fowls can help themselves at pleasure. Boiled potatoes or turnips, mashed and mixed with Indian-meal, make an excellent feed for laying hens. Fowls are particularly fond of cabbages and turnips at all stages of their growth, and eat them raw greedily every day, if they can get them. We have found so good results from feeding cabbages to laying hens, that we always lay in a large supply for the winter. Refuse from the butchers, and offal from the fish-market, also furnish good material for making eggs. These are accessible to most villagers, and can be had at small cost. A hen is only a machine for producing eggs. If you want the finished product you must put the raw material into the hopper. It should not be forgotten that there is a liberal grinding going on in the gizzard, and the laying bird should have free access to gravel with sharp grit, broken oyster and clam shells, which assist in reducing the grains and forming egg-shells. With a plentiful supply of egg-producing food, hens will lay well in winter when eggs bring the highest price.

Waste of Land.—If a farm of 160 acres is divided by fences into fields of 10 acres each, there are 5 miles of fences. If each fence now is one rod wide, no less than 10 acres of land are occupied by them. This is equal to 6¼ per cent of the farm, and the loss of the use of the land is exactly equal to a charge of 6¼ per cent on the whole value of the farm. But nearly every fence row in the country is made a nursery for weeds, which stock the whole farm, and make an immense amount of labor necessary to keep them from smothering the crops. Much damage always results to the crop from these weeds, and if these expenses are added to the first one, the whole will easily sum up to 20 per cent, or a tax of one-fifth of the value of the farm. To remedy this we would have fewer fences, or we would clean and sow down the fence rows to grass or clover, and mow them twice a year. Ten acres of clover or timothy would at least supply a farm with seed and a few tons of hay every year. We would in short consider the fence rows as a valuable part of the farm, and use them as such.

Ogden Farm Papers.—No. 71

BY GEORGE E. WARING, JR.,

The occupants of country and village houses are generally free from the great dangers that beset those living in towns, where the houses are in communication with poison-generating sewers, in which the accumulated wastes of large populations are festering. But at the same time their domestic arrangements are often so much less complete, that there is a greater accumulation in and about the house, of matters which, by their putrefaction, may generate disease. All who will adopt in some form the practice of using earth, or coal ashes, for the absorption and disinfection of water closets, will find that they can, in an extremely simple way, overcome one of the greatest annoyances, and obviate one of the greatest dangers connected with their mode of life. I say nothing about the advantage to a farmer of saving manure for profitable use, because I insist that this question is one which should be enforced on its own merits, as a measure of health and life. The manure is valuable of course, but any man who needs the argument of profit to induce him to purify and render more healthful the abode in which his wife and children are destined to live, may fairly be presumed to be too dull to appreciate the economy of the practice.

Hardly less important than the closet question, and so far as it relates to the production of fevers, not seldom, even more important, is the question of the kitchen drain. Nothing enters this except soap and grease, and the refuse of the cooking, all of which are in themselves comparatively inoffensive, and certainly not dangerous matter, but once accumulated and allowed time for decomposition, (usually covered from the light and where the circulation of air is imperfect), they enter a state of putrefaction in which they throw off gases that are dangerous in themselves, and are often the vehicle of the seeds of disease. The trouble with the kitchen drain, however constructed, arises chiefly from the fact that it contains a large quantity of grease melted by the hot water accompanying it. This goes forward in a fluid form until the water has become sufficiently cold for it to harden, and then it attaches itself to the sides of the drain, or to crumbs of food or other organic matters which have attached themselves to previous deposits, and in this way, sooner or later, the drain becomes either so much choked that its flow is greatly interrupted, and thus decaying material gathers near the house, or that the greasy accumulation is in itself sufficiently large to produce the worst results on its decomposition at this short range from the kitchen. As a rule, the best made kitchen drains, as they now exist, are the worst. They have most of the inherent difficulties to which I have referred, are permanently so hidden from sight that their condition is not easily detected, and communicate with the inside of the house by a tight lead pipe that has often some sort of a trap, which is literally a trap to catch ignorant victims. As a means for preventing the ingress of air from the drain, this trap is exceedingly defective, and the "bell-trap," so often used, aside from having too little water to be of any effect, is constantly being lifted off to clean the sink, opening a still freer vent to the accumulated air of the drain.

It is not necessary here to go into the full question of the construction of sinks and drains, and their connection pipes, but it does seem worth while to describe the use of Field's Flush-tank, of which I have before written, and which I have had for some time in use at my own house. Owing to the arrangement of my irrigating drains, and to the fact that my land is nearly level, the drain leading from the kitchen begins at a depth of only one foot below the surface of the ground, and only five feet below the level of the kitchen sink. The flush tank is about two feet and a half high, its outlet two feet below its top, therefore we could only bury it a little more than half its depth in the ground, and in order to protect it against frost, were obliged to house it in and pack it around with leaves, a protection that has been found amply

sufficient in the recent very cold weather. The action of this tank is as regular and perfect as could be asked. It is automatic, it holds about a barrel of liquid, and when once filled, the flow of a

Fig. 1.—AUTOMATIC TANK MADE FROM A BARREL.

continuous stream from the sink, (such as would come from the emptying of a dish-pan), fills this siphon, which continues to flow steadily until the contents are lowered to the level of its mouth. Except during the action of the siphon, there is no flow whatever through the drain. I have found that in less than two minutes, about two-thirds of a barrel of liquid, (already accumulated in the tank), flows through the drain in a cleansing stream, which an examination shows to have left no refuse matters in its course. This tank is not yet made in America, and owing to its size and the cost of importing it, it is not likely that it will for the present come largely into use. In the meantime, the inventor has taken no patent in this country, and the invention is open to the use of all who choose to adopt it.

The accompanying illustrations show how a perfectly efficient and satisfactory flush-tank may be made from a kerosene or other tight barrel without much expense. The barrel must be a sound one, with its bung well secured, and both of its heads in good order. Cut a circular hole in the upper head, twelve inches in diameter. Half way between the side of this hole and the chime, make another hole two inches in diameter. Finish the larger hole with an edging made of lead or copper, lapping over about an inch, and being securely nailed fast in a bed of white lead. This metal should be beaten in a groove or gutter just inside of the large opening, having its edge turned up at a distance of one inch from the edge of the hole. The head will then have an opening ten inches in diameter, surrounded by a channel three-fourths of an inch, or an inch deep, and one inch wide. A funnel of the same metal, (tin or galvanized iron would soon rust out), should be made to fit in this groove, its upper edge being turned over about an inch for the purpose. This funnel at its lower end should be furnished with a pipe turning up in such a way as to constitute a trap. Near the top of the funnel there should be a shoulder capable of supporting an ordinary round stove-grate of cast-iron; this grate is intended to keep back any coarse matters which might obstruct the siphon, and to serve as a weight to keep the funnel in its place. Into the two-inch hole in the barrel top insert a ventilating pipe, which may be of tin, and which should be carried to the highest convenient point well away from any window or chimney top. Through one side of the barrel close to the top, make a hole large enough to receive a 1¼ inch lead pipe, which being turned down to within 6 inches of the bottom inside, and 2 or 3 inches lower at the outside is to constitute the siphon for emptying the barrel—this pipe should not be larger than 1¼ inches interior diameter, as the larger the pipe the greater the amount of water needed to start it into action. The outer end of this pipe delivering into the drain is partially shielded from the access of air by an arrangement which will be described further on.

Fig. 1 shows the arrangement of the whole apparatus. *A* is the barrel, *b* is the metal rim, or gutter surrounding the opening; *c* is the funnel with its trapped outlet; *d* is the iron grate; *e* is the siphon; *f* is the outlet drain; *g* is the ventilator; and *h* is a simple cylinder of galvanized iron or tin, to be used when the top of the barrel is above ground, so that it may be well packed around with leaves or litter without danger of these getting in to choke the grate. Where such packing is necessary, the whole affair should be housed in to protect it from the wind, and indeed it is always necessary to prevent the blowing in of rubbish which might plaster itself over the grate and prevent the water from entering.

Fig. 2 shows more in detail the construction and arrangement of the rim, the funnel, and the grate. The gutter of the rim will always be kept full of water from the small amount splashing over, and this serves to seal the channel at this point just as the bent pipe at the bottom of the funnel seals its outlet. These seals are not liable to be forced, because of the ample air channel furnished by the ventilator.

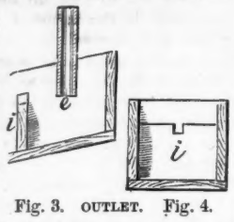


Fig. 3. OUTLET. Fig. 4.

Fig. 3 is a longitudinal section, and fig. 4 a cross section of the outlet drain, show the arrangement for checking the flow of the siphon. A dam (*i*) which may be of wood, brick, or any other suitable material, closes the drain in front of the siphon to a hight a little above its lower end. This is notched down at its top to a point just below that of the end of the siphon, in such a way that after the barrel is discharged, the siphon itself will be emptied and will fill itself with air. This notch is too small to accommodate any considerable flow of the pipe, and the dam checks back the first water running, and helps to bring the siphon into action, but after the flow has all passed over, it lets the water behind the dam fall low enough to admit air to the pipe. I do not know that anything further is necessary in the way of practical directions, except to say that the siphon pipe had better be attached to the side of the barrel, outside and in, by bits of tin tacked over it so as to prevent its being injured. Indeed, the whole siphon might be inside of the barrel, its lower end passing out through a hole near the bottom; this arrangement entirely obviates the danger of its becoming jammed, or the possibility of a trickling flow through it being frozen until the accumulated ice would quite close it.

Fig. 2.—FUNNEL.

The discussion concerning the deep or shallow setting of milk, and the temperature at which cream rises best, is still going on with considerable activity in different parts of the country. Each side has its partisans, and those who adhere to shallow setting are urging me to produce "my evidence," "prove my claims," etc., etc. In reply to all of which I have only to say that I make no assertions, and advance no claims. I have stated during the past three or four years exactly what our experience has been in setting our milk in deep cans immersed in spring water, giving the results as compared with our former practice of shallow setting;—without accuracy, because I have never made any accurate comparative trial. I am satisfied that so far as our own dairy is concerned, we are making very nearly, if not quite as much butter as we did under shallow setting, and that its quality is *always* as good as it was with the old method, even under the most favorable circumstances. This satisfies us that we are on the right track, and even if we did lose something in quantity, we gain enough in quality to much more than make up for it, especially as our butter is sold at a high price to customers who would at once abandon us and throw us on the common market if there were any falling off in the *quality* of our supply. We had much better sell 10 pounds of butter at a dollar a pound, than 30 pounds at thirty-three cents a pound, and we are practically sure that with us there is not a difference of five per cent one way or the other, between the amounts made by the different methods. If Ogden Farm were an experimental farm carried on for the good of the public, or a model farm, carried on for the benefit of our own reputation, I might think it worth while to make the experiments, that those who are most active in the discussion are urging me to make, but as it is simply a business enterprise where the sole aim is to get the most profitable result, I cannot run the risk of interfering with the quality of my product for the sake of entering into a discussion solely for the public good—much as I am interested in this. Then, too, there would be a danger that I might go the way of these contestants, and patent some invention in connection with the setting of milk, the construction of milk rooms, or the manufacture of butter, which seems so often the end of enthusiastic partisanship on this question. I do not of course object, but on the contrary, applaud the inventive genius, and the enterprise of all who devise new processes in connection with the dairy; I only mean that that sort of thing is out of my line. I trust that the dairy experience at Ogden Farm has resulted in benefit to the public, and the many letters that I have received asking more minute information as to our methods, indicate that a wide interest is taken, and wide confidence felt in what we have done, and I shall be glad if we may long continue to exert in this way a quiet influence toward general improvement. But while we see in this a real compensation for what we are doing, I must decline all invitations to prove the truth of what I may say as to processes or results. Statements made in these papers are made as statements of fact, if they are not so accepted I am, of course, sorry for it, but I do not propose to take the trouble of adducing proof in their support.

I have a letter from New York State from one who does not wish his name given, as he expects next year to make a more favorable report, but his present one seems to me too good an illustration of the value of grade Jerseys not to be published. The animal is just three years old now, she had her first calf February 28th, 1875, and is due to calve again January 20th, 1876; when fresh she weighed 740 lbs. Her dam is a common cow; her sire, a thoroughbred Jersey bull; her feed was what she could get in a stalk field and clover pasture, with three quarts of bran night and morning. She was kept in the stable over night with no other feed but the bran. She yielded in one week "119 lbs. of milk, (about 51 quarts). I made from that milk 8 lbs. 8¼ ozs. of as nice butter as you would want to see, (solid butter as yellow as gold); Jersey cows are the cows for me."

Mr. Enoch Pratt, of Baltimore, writes as follows: "From October 1st, 1874, to October 1st, 1875, four cows, (Jerseys), furnished the milk used by my farmer, who kept the calves, eight or ten weeks each, and furnished my large family from the 20th of June to October 1st, with all the milk and cream required, (and it was used lavishly), and made in the year 975 lbs. of butter, showing, I think, as good a result as any I see, although for short periods some cows no doubt have made more, but my cows go through the year." This last point is an important one, for it is not the least of the merits of the Jerseys that they hold out their milk very nearly to the time of calving, which is of special advantage for family use, and which even for the dairyman secures him a fair supply at seasons when butter is higher than in the flush of summer feed.

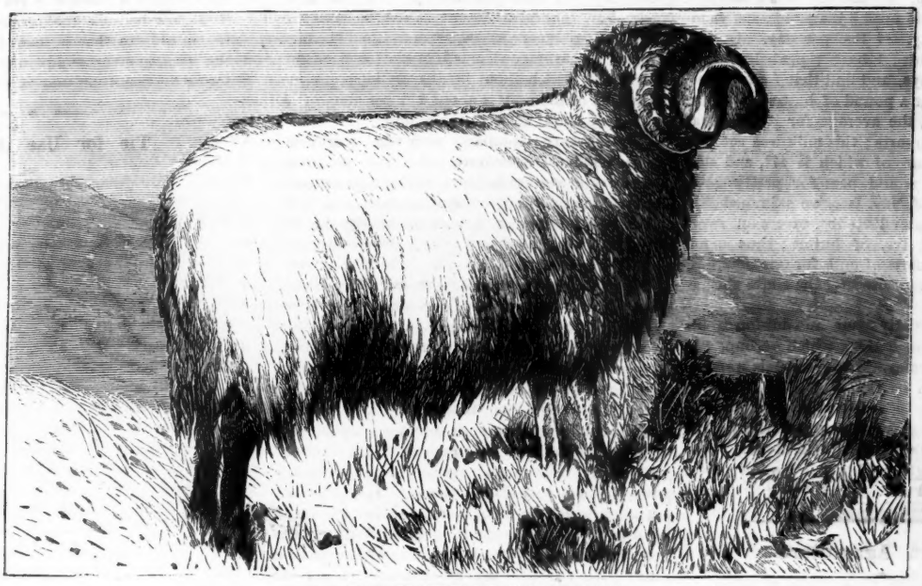
The Black-Faced Scotch Sheep.

A recent importation of Black-faced Sheep from Scotland, by a resident of the western plains, has tended to bring this hardy and useful race into notice. A flock of these sheep has been kept in Illinois for some years past with success, and they have proved themselves well adapted to the climate and soil of that locality. These sheep will be still more suitable for the mountains, valleys, and plains of Colorado, and the territories further north, and also for the Alleghany ranges, than for the rich pastures of Illinois. This race is remarkably hardy, and for some centuries have been accustomed to subsist on the coarsest fare, and in the most exposed situations. Used to the most violent snow storms, they are well able to take care of themselves, under conditions where no other sheep could survive. Cases have been known in which portions of a flock, caught in a sweeping snow storm, have been overwhelmed in the drifts, and yet have come out safely, after an imprisonment of many days. In case of a sudden storm they instinctively crowd together, and as the snow gathers about them they push and pack it in a compact wall around them, until finally they are enclosed as by the sides and roof of a cave. Here they remain until they are discovered by the keen scent of the shepherd's dog, or until the snow thaws sufficiently to allow them to break through and escape. Even the lambs will survive hardships that few full grown sheep of other breeds could resist. These sheep are small and active; the horns of the ram are large and spirally twisted, while in the ewe they are smaller, and are often wanting. The form is robust, and the flesh remarkably succulent and palatable, possessing a peculiar venison flavor, which causes the mutton to be preferred to all other kinds by those accustomed to it. The weight of the carcass is about 60 lbs. at four years of age; when well fed and cared for, from an early age, this weight may be largely exceeded. The fleece yields three pounds of washed wool, of medium length, and coarse fiber, and is in demand for carpets and coarse cloths. When care is taken to select for breeding those animals which have the best fleeces, very considerable improvement can be made in the character of the wool.

There is no doubt that, with the excellent pasture furnished throughout the year by our western plains, a rapid improvement could be made in these sheep, and an acclimated breed obtained, which would be very valuable for the production of flesh, and also wool that would be suitable for our home manufactures of the less fine woollens.

As an animal for crossing upon other breeds, it is not a success, except with the Southdown. It has been used in this way with the effect of producing handsome sheep, with very black faces and legs, and a good, close, useful fleece, and excellent, very hardy and thrifty early lambs. There can be little doubt that this breed could be used with profit to improve the poor Mexican sheep, which are common in the far west, and to produce a better carcass than the cross with the Merino, even if the fleece is not so valuable. In Scotland these sheep are kept in large flocks, one proprietor owns 40,000, and there are very many flocks of over 5,000.

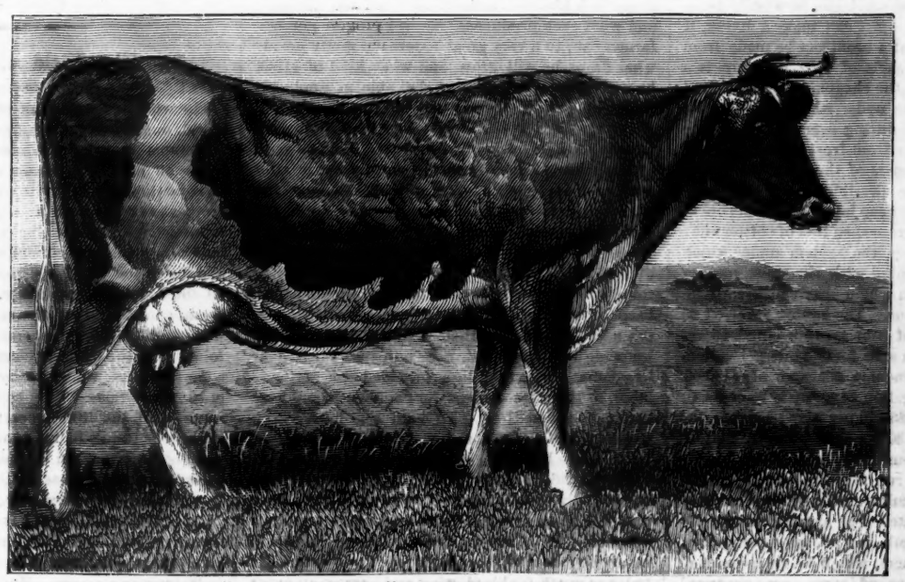
They rarely reach maturity upon their native pastures, being generally passed through several hands before they reach their final destination—the markets of the English cities. In their migrations they are made to pasture for a season, or to consume turnips, upon which they are folded, and are often fattened upon oil-cake-meal on some of the highly farmed English estates. They are brought to market at maturity, or when 3 to 4 years old.



AN IMPORTED BLACK-FACED SCOTCH SHEEP.

Jersey Cow "Maggie Mitchell."

The portrait here given is from a photograph of the Jersey cow "Maggie Mitchell," owned by Mr. M. Y. Tilden, of New Lebanon, N. Y. This cow is an extraordinarily large butter producer, and in this respect she is probably not surpassed, if equalled, by any other in the country. She was bred by Mr. Thomas Fitch, of New London, Conn., and sired by his bull "General Scott." She now weighs 1,020 pounds. She gave from April 12th, 1874, to Jan. 1st, 1875, 6,506¼ lbs. of milk, and after the latter date, before the year expired, enough more to bring her yield within the year up to 7,500 lbs. An attack of garget reduced her yield at least 500 lbs. She "came in" the past season on the first of September, and on pasture alone, was giving in October, at the rate of 1,000 pounds of milk per month. Her public reputation was made in 1873, when in the first 15 days of September, she made 35 lbs. 11 ounces of solid packed butter, which was soon afterwards exhibited at the N. Y. State Fair at Albany. Previously, in July of the same year, when she was yielding 38 lbs. of milk daily, a trial of her butter yield was made for one week, the first seven milkings produced 9 lbs. 6 ounces of butter, or at the rate of 18¼ lbs. per week. Some thunder showers happening the latter half of the week, the test was not continued. In this test one pound of butter was produced from 6$^{4}/_{10}$ quarts of milk. Another and very careful test was made the same season in the month of August, in the presence of Col. M. C. Weld and Dr. F. M. Hexamer, two gentlemen whose testimony is beyond doubt. The cow was milked in the presence of these gentlemen, early in the morning, and the milk, which weighed 16¼ lbs., was cooled in a tub of cold water, and immediately churned. The result was a pound and a quarter of butter from this half day's milking. The cow had been milked as usual the previous evening, in the presence of Messrs. Weld and Hexamer. Maggie is a fine looking, good sized cow, fawn and white in color; the fawn shading to dark brown on the fore-quarters and about the head; skin very yellow; body capacious; limbs fine; head bony and handsome. She has a rather large bag, evenly quartered, rich in color, with large milk veins and broad and high milk mirror. Altogether she has the look of the good milk and butter cow which she is, but there is nothing in her appearance that any one



JERSEY COW "MAGGIE MITCHELL," OWNED BY M. Y. TILDEN, NEW LEBANON, N. Y.

would consider extraordinary. The heifer calves of this cow promise to equal their dam. They have the following record:

"Maggie Mitchell 2nd," 7 years old; yielded from June 5th to January 1, 1875, 208 days, 5,088½ lbs. "Maggie Mitchell 3d," 3 years old in 1874, yielded from May 20th to Jan. 1st, 1875, 223 days, 3,352 lbs. "Maggie Mitchell 4th," 3 years old, was small and not allowed to come in until 3 years old; she yielded for June and July, 21½ lbs. per day. To this record Mr. Tilden adds: I have repeatedly tested the milk of my Jerseys, and find that 7 quarts is a very safe estimate for a pound of butter. For the month of June, 1874, the average for 13 head was $16^{39}/_{100}$ lbs., or $7^{34}/_{100}$ quarts; this milk was set in a spring, the temperature of which is 47°, and that left after skimming would pass for pretty good milk. On the 20th of Nov. last, we skimmed 131½ lbs. of milk, and obtained 21½ lbs. of cream, from which was made 11 lbs. of butter; thus using $11^{96}/_{100}$ lbs., or 5.56 quarts of milk for one pound of butter, nothing being allowed for the slight shrinkage while set.

Mr. Tilden has recently made an addition to his herd, of nine cows and heifers, which he imported from the Island of Jersey. These animals were selected for Mr. Tilden by Col. M. C. Weld of New York, who visited the Island for that purpose, and were chosen with the greatest care and deliberation for their butter yielding capabilities alone. Some of these cows have given 12 to 16½ lbs. of butter per week in an actual test.

Southern Agriculture.

The Commissioner of Agriculture of the State of Georgia, Thos. P. Janes, Esq., is doing a work of the greatest value to agriculture in the southern states. He is now issuing a series of circulars, containing information respecting the crops grown, and kinds of stock kept in the state, with suggestions as to the methods by which they may be improved and increased in value. From one of these circulars, (No. 21), which contains "A Consolidated Report of Crops, etc.," for last year, we gather some very valuable, not to say surprising information. This is valuable as showing the promising condition of southern agriculture, now that its defects and mistakes are clearly seen, and in process of being removed or corrected, and surprising as showing from what comparatively poor returns the southern farmer can make a living, if not a good profit. That a profit can be made from a crop of only *nine* bushels of corn per acre, is a surprising evidence of the cheapness of labor and cultivation, in a climate under which farm operations can be carried on during every month of the year, without hindrance from frost or snow. Now that the intelligent farmers of the state have combined to investigate the possibilities of their soil, climate, and supply of cheap labor, and experiment upon more promising crops than that of cotton, they can hardly fail to change the system under which they have been contented with the most meager crops, for one through which they can greatly increase their productions. The report referred to shows that the yield of cane syrup is equal to 192 gallons per acre, which sells for 68 cents per gallon, giving a total gross income per acre of $130.56. The cost of raising a gallon of syrup is 28 cents, or with the above yield, $53.76 per acre; leaving the net profit equal to $76.80 per acre. Twelve gallons of syrup are make from 100 gallons of cane-juice. The production of syrup is more profitable than that of sugar. The culture of sorghum has very largely increased of late. The average yield is 73 gallons per acre. It sells for 66 cents per gallon, producing $48.18 per acre, which leaves a profit of $37.74. Fifteen gallons of syrup are produced from 100 gallons of juice. The average yield of corn is nine bushels per acre. The greatest yield reported is as high as 30 bushels per acre, while the least is but five bushels. When peas, (the southern pea, and altogether different from the field pea of the north), are sown with the corn as a catch crop, the average yield is only 4 bushels per acre. The cost of a crop of corn and peas is $8 per acre, and the value of the crop, including only 185 lbs. of fodder, is $16.32 per acre. The average yield of "ground peas," or "goubers," which are grown for feeding hogs, is 28 bushels per acre, that of sweet potatoes is only 60 bushels per acre. All these crops, notwithstanding the very small yields, are grown with profit. The most common crop, cotton, on the contrary, has been produced at an actual loss the past year. The crop amounts to 400,000 bales, which cost the producers $2,000,000 more than the market value. The average yield is 412 lbs. of seed cotton per acre, from which about 137 lbs. of lint is produced. The cost of the crop is about $16 per acre, or with this yield about 12 cents per pound.

These returns compared with what might be expected under a better system of culture, are such as a northern or western farmer would consider ruinously poor. A more intelligent management could not fail to greatly increase them, both in quantity and profit. The first help to a better way, is to discover the necessity for a change. The next is to give an earnest effort to make the needed change. The fact that the Georgia farmers have organized a Department of Agriculture, and have set themselves resolutely to improve their condition, promises well for their early success in gaining this end. A convention of the correspondents and experimenters of the Department, is called to meet at Atlanta, on the 25th of the present month, for the purpose of discussing subjects of vital interest to the farmers of the state. This is better, and will be productive of more satisfactory results, than crying out for immigration which does not come, and is not likely to come while the returns from agriculture remain so poor and unattractive to northern or foreign farmers. The case of southern agriculturists generally, and those of Georgia particularly, is clearly one in which they will be helped the more, the more they help themselves.

Business Habits.

There is probably not one farmer in ten thousand who keeps a set of accounts from which he can at any moment learn the cost of anything he may have produced, or even the cost of his real property. A very few farmers who have been brought up to business habits keep such accounts, and are able to tell how their affairs progress, what each crop, each kind of stock, or each animal has cost, and what each produces. Knowing these points a farmer can, to a very great extent, properly decide what crops he will grow, and what kind of stock he will keep. He will thus be able to apply his labor and money where it will do the most good. He can weed out his stock and retain only such animals as may be kept with profit. For the want of such knowledge, farmers continue, year after year, to feed cows that are unprofitable, and frequently sell for less than her value one that is the best of the herd, because she is not known to be any better than the rest. Feed is also wasted upon ill-bred stock, the keep of which costs three or four times that of well bred animals, which, as has been proved by figures that cannot be mistaken, pay a large profit on their keeping. For want of knowing what they cost, poor crops are raised year by year at an actual loss, provided the farmer's labor, at the rates current for common labor, were charged against them. To learn that he has been working for 50 cents a day, during a number of years, while he has been paying his help twice as much, would open the eyes of many a farmer who has actually been doing this, and it would convince him that there is some value in figures and book accounts. It is not generally understood that a man who raises 20 bushels of corn per acre, pays twice as much for his plowing and harrowing, twice as much for labor, and twice as great interest upon the cost of his farm, as a neighbor who raises 40 bushels per acre. Nor is it understood that when he raises a pig that makes 150 pounds of pork in a year, that his pork costs him twice as much, or the corn he feeds brings him but half as much as that of his neighbor, whose pig weighs 300 pounds at a year old. If all these things were clearly set down in figures upon a page in an account book, and were studied, there would be not only a sudden awakening to the unprofitableness of such farming, but an immediate remedy would be sought. For no person could resist evidence of this kind if it were once brought plainly home to him. If storekeepers, merchants, or manufacturers, kept no accounts, they could not possibly carry on their business, and it is only because the farmer's business is one of the most safe that he can still go on working in the dark, and throwing away opportunities of bettering his condition and increasing his profits.

Tie for Use in Stables.

There are few cattle-ties that are absolutely safe to use. The chief danger in the chain-ties is that they may become loosened, and in the rope-ties that the animals may entangle their feet, and be thrown in the stall. The consequences of either accident may be disastrous. A tie that is very safe is shown in an illustration, which we borrow from the London "Agricultural Gazette," and which is in use in English stables for both horses and cattle. It is made of rope not less than three-quarters of an inch in diameter, to the end of which is fastened a weight, sufficiently heavy to keep it always drawn tightly through a ring, fixed to the side of the stall, except when the animal lies down, or moves backwards, when the weight is drawn up. This weight slides up and down on an iron rod. There is thus never any slack left in the tie, over which the animal can put its foot, and get cast or fast. With this tie there should always be used a stout head-stall, to which the upper end of the halter should be safely and permanently fastened. A blunt or a peg hook should be placed at the upper end of the stall, upon which to hang the head-stall when not in use. If this is not carefully done, the head-stall will lie in the filth, and become disagreeable to handle; yet this happens very frequently in stables.

STABLE-TIE.

The Yield of Wheat.

The wheat crop as the chief food grain of the world, ought certainly to be grown with profit. If this staple crop is by universal consent admitted to be an unprofitable one, there must necessarily be something wrong in its management. No other crop can take its place under our present system of farming, for it is in the vast majority of cases made the vehicle for bringing in grass and clover, and its place in the usual rotation cannot well be filled by any substitute. But there is a universal complaint that there is no profit in growing wheat. This is very generally true, but it does not follow that the blame belongs to the wheat, for with some farmers wheat is by far the best money crop they raise. But these farmers raise far more than the low average of 12 or 15 bushels per acre. It may be taken as a general rule that a yield of less than 25 bushels of wheat per acre is grown at a loss, at least in those localities where it is necessary to use manure to produce this grain. Where the "virgin soil" is still unexhausted, and manure is left to rot idly in the yards, or to be washed into the streams, there may still be some little profit in 20 bushels per acre. But where 10 to 20 loads of manure per acre is used every four years, and lime, superphosphate, or other fertilizers are applied periodically, in addition; a crop of even 25 bushels is hardly profitable. Still a larger yield than this is the exception rather than the rule upon well cultivated farms. An elaborate effort has been made recently by Mr. Klippart, the Secretary of the Board of Agriculture of Ohio, to ascertain how frequently

40 bushels of wheat per acre has been grown by farmers in that state. A circular was issued to the secretaries of the county agricultural societies requesting the names of those farmers who had within their knowledge grown 40 bushels of wheat or over per acre. From Champaign County five names were reported, three of these farmers had grown 40 bushels, one 45, and one 51 bushels per acre. In Hardin County, two names were obtained. Mercer County furnished six names; Morgan County, one; Putnam County, one; Shelby County, three; and Sandusky County, three names, one of which was that of a farmer who raised 61 bushels per acre. With these few exceptions, the yields reported were a few of 30 bushels or more, many of 25 bushels, and in many cases the latter yield was mentioned as an extraordinary crop. In some cases the yield was reported as being little more than the quantity of seed that had been sown. It is largely the custom in Ohio to sow the wheat upon the corn stubble, simply harrowing in the seed or covering it with one plowing or cultivating. Where this is done, a profitable yield cannot be looked for, even upon the rich bottoms of that generally fertile state. The few large crops reported are without doubt raised in a different manner from this, although we have no means of knowing the methods by which they were grown. It is the same in other states. Forty years ago, forty bushels of wheat per acre was very common in western New York and Ohio, where now a third of that quantity is an ordinary crop, and a half of it a good one. It is doubtful if any other state in the whole country could make a better showing than Ohio, although the average yield of wheat is slowly increasing in the older states. It is on the way to a minimum in the latest settled of the western states, California included, and will there be some years yet before it will reach a turning point. The incentive to a better management of the wheat crop is a powerful one. It is the necessity for the means of living in comfort. A farmer who raises 12 bushels of wheat per acre can hardly be said to live, he exists, but cannot live in comfort upon such an income, nor can he make life upon his farm desirable to his children. Necessity must force him to improve his mode of culture, and to prepare the ground very much better than he has done heretofore. A low price for wheat relieves the American farmer from much foreign competition, and it is hardly probable that we shall see the price of wheat advance much above the present rates, unless as a consequence of a light yield. But a doubled yield is equal to a doubled price, and we can safely produce such a crop, inasmuch as with the high rents paid by English farmers, and the greater profit in grazing, wheat growing in that country, which is our best customer for wheat, is yearly decreasing in extent. To produce this doubled crop is not impossible; the fact that some farmers do it, proves that others may do it also.

The Effect of Fashion in Stock Matters.

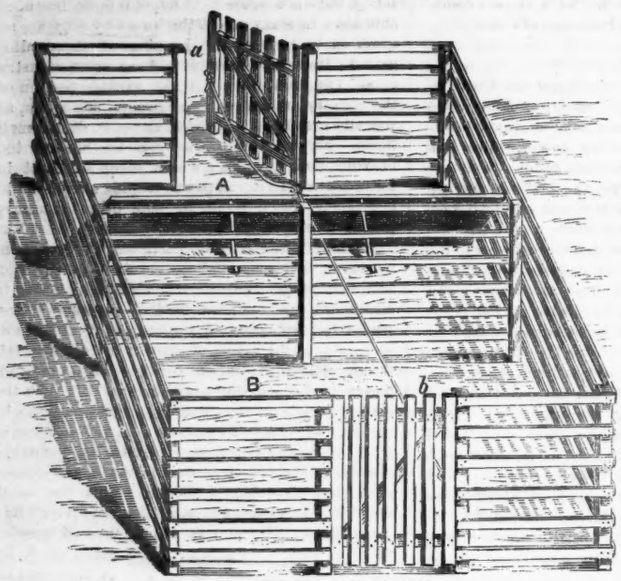
The results of some recent sales of pure-bred stock of different breeds, are well worth more than a passing notice. It has never yet occurred that a class of stock, however popular it may have been for a time, included in itself every possible valuable characteristic. We have never yet had one breed of cattle that met every requirement of the farmer, dairyman, grazier, or butcher. It is not probable that we shall ever produce or possess such a breed. When any one breed or class of cattle threatens to become so popular as to cause all others to be neglected, and to seriously reduce their marketable value, past experience would lead us to expect that the climax of its popularity has been reached. We learned this lesson a few years ago, when no sheep except Merinos were considered worth keeping, and we may be in danger of receiving another similar lesson before long in regard to Short-horn stock of the more fashionable sorts. The recent sales of Short-horns in Kentucky, and of Ayrshires and Devons elsewhere, go to prove this unmistakably. In the Kentucky sales it is noticeable that Short-horns, of excellent character and good pedigree, sold for prices that were equivalent to their value for beef, and no more; while a three month's calf of a more favored family, undeveloped and of no certain promise as to the future, brought the remarkable price of $17,500, and has since been resold for $22,000. Such an occurrence is strong evidence that, so far as regards these fashionable cattle, we are in the well developed stage of a decided mania. When $15,000 was offered and refused for a Merino ram, not many years ago, we were in just such an excited condition, from which we soon emerged to find the price of rams fall to $50, or in some cases as low as $10, which was somewhere about their intrinsic value. Not long since those excellent cattle, the Devons and the Ayrshires, for some localities and circumstances unsurpassed by any breed whatever, bore a money value somewhat on a par with their real worth. But the past few months some of these cattle, of faultless character and high breeding, have been either offered without buyers, or have been sold at prices below those which could have been realized for extra good native stock. Of the Herefords, at one time considered to be the peers of the Short-horns for the production of cheap and excellent meat, upon moderately strong pastures, nothing is now heard, and they are almost entirely neglected. The owner of a well known herd of Ayrshire cattle recently sold his stock for a small portion of their value to make room for a herd of Short-horns. The excellent herd of Devons owned by Mr. Mattoon, of Springfield, Mass., was recently withdrawn from public sale on account of the inadequate prices offered. The result may be unfortunate for those persons who at this late period of the excitement in regard to Short-horns, go into the speculation of breeding them, with insufficient capital, or without the nerve to bear possible future losses without repining; and it will be equally unfortunate for those who are tempted to neglect the improvement of their stock by means of unfashionable breeds, because of the present neglect with which these breeds are regarded, or because they are dazzled by the more brilliant record of others which are beyond their reach. The Short-horn may be the most profitable animal to keep on the blue-grass pastures of Kentucky or Ohio, or the rich valleys of the Mohawk or the Genesee, or wherewith to cross the long-legged and long-horned Texan; but it cannot be kept with profit where it is obliged to climb hills to its pasture, nor where the meadows are not always in condition for the scythe; nor can it be profitably fed in stalls upon meal. It has its place, and it will fill that better than any other breed. But so has the Hereford, the placid, gentle feeder which never loses an ounce of flesh through ill-temper or nervousness, and which thrives upon second-rate pastures, and makes a heavy weight of the best beef. So also has the Devon, which as a working ox surpasses any other, and which on hill pastures will produce most acceptable beef with profit. Neither can the reputation which the Ayrshire has acquired in two centuries as an excellent dairy cow, be suddenly destroyed by the Short-horn, which for nearly a hundred years past has been losing its dairy qualities by a course of high feeding and breeding. It is said that the best time for one to acquire a good thing cheaply, is when everybody else is anxious to dispose of it, and if this be true, it is certainly a good time now to procure excellent pure-bred stock of the neglected varieties, while the majority of breeders are pursuing the more promising but more risky business of dealing solely in Short-horns.

A School of Shepherds.—A school of shepherds is established at the national sheep farm of Rambouillet, France. In this school young men, over 15 years of age, are instructed in all the arts of sheep husbandry, during a term of two years. After passing creditably through this term, and a final examination, the graduates receive a "certificate of capacity," and the most capable are rewarded with a prize of $75, the second best receive $50. They then become apprentices, and can either go to keeping sheep for themselves, or seek employment from owners of flocks.

Trap for Sheep-Killing Dogs.

A correspondent from Spencer Co., Ind., sends a sketch and description of a trap for catching sheep-killing dogs, which may be useful to owners of sheep that are subject to depredations by those animals. In many places the losses by dogs are so great as to prevent the keeping of sheep altogether; thus this profitable and agreeable industry is made impracticable over the greater portion of the country, unless such precautions are taken, as will add greatly to its trouble and cost. With small flocks only, this extra cost and trouble are too onerous, and it is only where sheep are kept in large flocks that it will pay to employ shepherds to constantly watch them, or take other necessary precautions. In several of the states—West Virginia and Tennessee more particularly—very stringent laws have recently been enacted for the protection of sheep against dogs, which will go far to encourage the raising of flocks. In other states, where the influence of the owners of dogs is of more weight than that of sheep-owners, these latter are obliged to look out for themselves, and protect their sheep as they may be able. For such the contrivance here described and illustrated, may be useful. It is made as follows: In the meadow or field, where sheep are pastured during the day, a small pen, eight feet square, is made, and fenced strongly with pickets or boards. This pen is divided into two parts (*A*, *B*, in the engraving) by a cross-fence. The pen is wholly covered over on the top with strong lath. Two gates (*a*, *b*) are made so that they will swing open of their own accord, and remain so, unless held closed or fastened. The gate, *a*, is furnished with a latch, by which it is fastened when closed. This gate is intended to admit the dog into the part of the pen, *A*, when he is attracted to it by a sheep confined for the purpose in the other part of the pen, (*B*). In the part of the pen, *A*, is a heavy board, reaching across it. One edge of this board rests upon the ground against two pegs, which keep it from slipping backwards. The other edge is kept up by means of two shaky slender supports. A rope is fastened to the upper edge of this board, and to the gates, so that one half of it, when the board is propped up, allows the gate *a* to swing open, and the other half holds the gate *b* shut, and thus keeps the sheep confined. The trap is now set. A dog, prowling in search of mutton, finds the sheep, and seeks an entry into the pen. He finds the open gate, and rushes in, over the board set upon its edge, and knocks this down. This closes the gate *a*, which is at once latched and fastened. The gate *b* is allowed to swing open, and the sheep is liberated, and, of course, proceeds homeward without delay, while the dog is imprisoned. We need not suggest any method of dealing with the prisoner, as there are many, more or less effective, which will suggest themselves. We think it would be an improvement upon this plan, if the sheep be confined in the pen, where it can be seen by the dogs, and an additional apartment, if not more than one, made, in which other dogs could be trapped. Sheep-hunting dogs usually go in couples, and if only one dog were trapped, the sheep escaping from the pen would be caught by the other, before it could reach home. With two or three traps all the dogs could be caught, and in a short time the locality would be rid of them, or, being identified, their owners could be made responsible for their trespasses. It would be necessary to have the pen made very strong, so that the dogs should not tear their way out of the trap, or into the pen in which the sheep is confined. Stout wire-netting would make a safe fence. So far as regards what are called dog-laws, it would be well if these should provide, amongst other things, that every dog must wear a collar, bearing its owner's name; that the owner of any dog which is caught in pursuit of sheep upon the property of any person other than the owner of the dog, should be held liable for damages for the trespass, and that any dog caught trespassing, and being without a collar bearing its owner's name, should be destroyed by the person capturing it. As any citizen has as much right to keep a dog as another has to keep a sheep, without being taxed for

it, and can only be held liable for what damage his dog may do, it does not seem just that any tax should be levied upon dogs. The only just claim that can be made by a sheep-owner is that he shall be protected in the enjoyment of his property, and



TRAP FOR SHEEP-KILLING DOGS.

that the person by or through whom he is injured, should recompense him. In the case of irresponsible owners of dogs, from whom no recovery can be made, the dogs should be destroyed by a proper officer. If the right of persons to keep dogs, when they wish to do so, without being taxed, is recognized in this manner, much of the opposition to the enactment of what are called "dog-laws," would be removed, and the protection of sheep made much less difficult, and productive of much greater profit.

A Stone Picker.

Picking up stones is an almost endless job upon some farms. Every year it may seem as if the work was finished, but another plowing turns up a new supply. Much of this work, however, may be done during the winter months, when there is little or no snow, upon days, when the sun is bright and warm. Then the sun's heat is absorbed by the stones, which are warmed and loosened from the frozen earth around them, and they may be readily picked up, and thrown into a wagon or sled. To prevent the disagreeable necessity of stooping for every stone, the stone-picker shown in the engraving may be used. This is made very strongly with prongs a quarter of an inch thick, and an inch broad at the top, tapering to a quarter of an inch at the point. The shoulder is made broad and square, so as to serve as a foot-rest, by which it may be pushed into the ground at one side of the stone. The prongs are curved, and the central one is depressed below the range of the others, so as to form a hollow, in which the stone may lie as it is lifted from the ground.

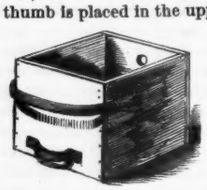
STONE PICKER.

A common long shovel-handle will serve for this tool, and it should be very firmly fixed in a strong socket, so as to resist the strain of prying a heavy stone out of its bed. This implement may also be used to dig potatoes, or lift roots. For the former purpose two additional prongs should be fitted and fastened between the others, by means of a screw-nut and a hole drilled in the shoulder or foot-rest, as shown at *a*.

A Feed Measuring Box.

The most convenient feed box we have used, was one holding one-tenth of a bushel. This was once a miller's "toll box," or the measure with which a miller takes out his tenth from each grist. The box was six inches square, and the same in depth, inside measurement; which gives it a capacity of 216 cubic inches, or about half a cubic inch over an exact tenth of a bushel, or 3 and $^{2}/_{10}$ quarts. This quantity of mixed feed of ground corn and rye; or corn, oats, and rye or wheat bran; will weigh about 4½ lbs. This makes a very fair allowance for one feed for a horse or ox, or for the daily ration of a cow in milk, or for two dry cows, or for two yearlings, or four calves, or the same number of sheep. This measure is not only a convenient size for daily use, but allows of very accurate calculation; the quantity fed each day may be gauged by it, and an account of it very easily kept.

The box should be made of some light wood a quarter of an inch thick; for ease in handling, a leather strap should be riveted near the top, as shown in the engraving, and another, but a shorter one, near the bottom upon the same side. If the thumb is placed in the upper strap, and the ends of the fingers in the lower one, the box is easily held. A small hole should be bored in the side opposite to the handles, by which to hang it upon a nail in the feed-chest or upon the wall of the feed-room. A piece of light clap-board or "siding," which is usually 6 inches wide, is a handy material of which to make a box of this kind; the handles may be made of cast-off harness straps, and should be fastened on with copper rivets and burrs.



BOX.

Hints for the Work-shop.

How to Use a File Properly, is a very important part of the education of a mechanic. Nevertheless, the file is very frequently used in such an imperfect manner, as to greatly reduce its value as a mechanical tool. The chief difficulty in using a file, is in keeping it in a perfectly horizontal position as it is moved over the work, and in maintaining an equable pressure upon the work meanwhile. Perhaps the most difficult work in filing, and that which is most frequently ill-done, is in sharpening saws. The bearing of the file upon the work, is very narrow, and unable to guide its direction, and unless the file is held very carefully, the direction varies continually, so that the saw tooth is filed

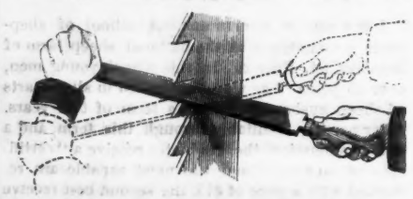


Fig. 1.—IMPROPER USE OF THE FILE.

rounding instead of flat, or sloping instead of horizontal, or at exact right angles with the line of the saw, as it should be in a mill-saw or a rip-saw. When the file is held as shown in fig. 1, (a very common manner of holding it), it is almost impossible to do good work upon a saw. When the file is pushed on to the tooth, the weight or pressure of the right hand is exerted upon the longer portion of

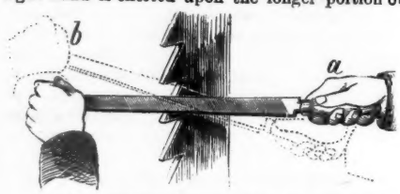


Fig. 2.—ANOTHER WRONG WAY OF FILING.

the tool, making it act as if it were the longer arm of a lever, and thus depresses that portion below the horizontal, as at *a*. When pushed forward, the pressure is then exerted upon the longer portion of the file, which is carried from the horizontal in the contrary direction. The work is thus

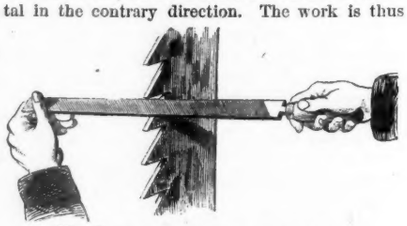


Fig. 3.—PROPER METHOD OF FILING.

made round. Or if the pressure of the left hand is guarded against, that of the right hand is seldom altogether controlled, and the work is left sloping, as at fig. 2; the position at the commencement being shown at *a*, and that at the finish of the stroke at *b*. This is a very common error with sawyers in mills, as well as with many carpenters in filing rip-saws.

To avoid either form of this error, the file should not be held with the ball of the thumb pressing

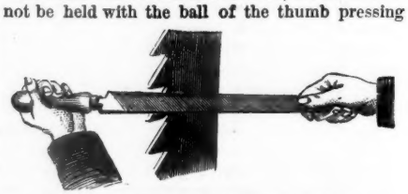


Fig. 4.—TO REST THE HAND IN FILING.

upon the handle of the file, as at figs. 1 and 2; but the end of the file should be taken lightly between the thumb and fore-finger, as at fig. 3. There is no uneven pressure in this case, and the direction of the file may easily be kept perfectly level. In filing the base of the tooth, or the under portion of any work which cannot be turned over, the end of the file should be supported upon the ends of

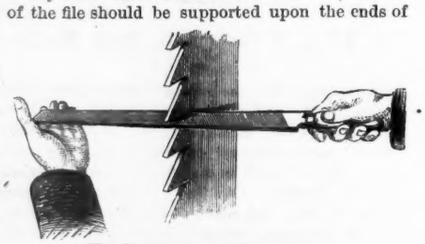


Fig. 5.—FILING UNDERNEATH.

the fingers, as at fig. 5, or be held by the end of the thumb, in an easy gentle manner. If held lightly, and not grasped too firmly, the arm or wrist will not be tired so soon as when it is held rigidly; and the motion of the file will be more even and regular.

When the arm is wearied by working in one direction, it may be rested by reversing the position of the file, taking the handle in the left hand, grasping the end between the fingers and thumb of the right hand, and drawing the file towards the body, instead of thrusting it away from it. The file is then held as in figure 4. This is an excellent position in which to hold the file when finishing off a saw tooth, or when touching it up at noon.

A Miter-box of an improved form, is shown at figure 6. The greatly increased use of moldings in

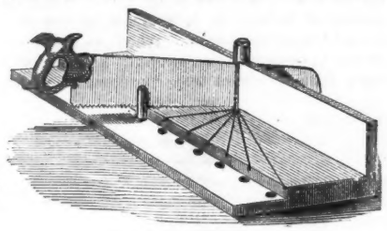


Fig. 6.—MITER-BOX.

house building, renders a miter-box very necessary in the work-shop. In the one here described, a bevel of any angle may be cut. At the rear of the box is a slotted post, which works in a socket, so

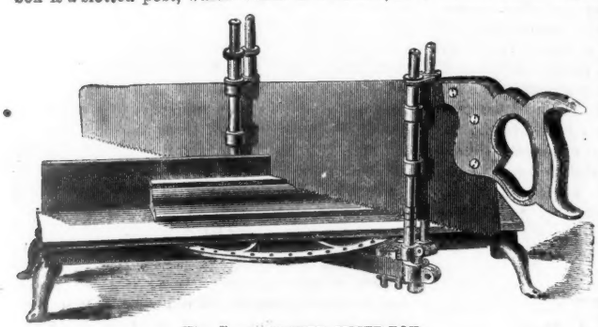


Fig. 7.—IMPROVED MITER-BOX.

that it will turn readily in any direction. From the post, lines are laid out upon the bottom at various angles. At the termination of each line is a round hole, into which a pin may be fitted. The pin is used as a guide for the saw in cutting a miter-joint, as shown in the illustration referred to. A very excellent, neat, and complete miter-box is shown at fig. 7. This is patented, but is sold at a very low price by the manufacturers. It has a frame made of a single casting, and therefore always true, in which are two sets of guides. The position of the forward guide is adjusted by a scale, to any angle, as shown in the engraving. Any ordinary saw, or even a back-saw, may be used with this box.

Fig. 8.—GIMLETS.

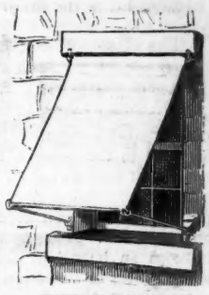
A Strong Gimlet, which is not liable to lose its handle by splitting, may be made by taking a common one, removing the wooden handle, and welding to the shank a straight cross-bar, or a loop, as shown at fig. 8. Augers may be treated in the same manner, and much improved for use.

IMPORTATION OF JERSEY CATTLE.—The Royal Jersey Agricultural Society has discovered a veritable "mare's nest," and have been seriously disconcerted thereby. A foolish statement made by one of the newspapers, which represent themselves as agricultural journals, to the effect that 3,000 Jersey cattle were annually imported into the United States, was brought to their knowledge. Without knowing how little that is published in such journals is to be depended upon, the R. J. A. S. held a meeting for the purpose of informing the "Minister of Agriculture" of the United States, how great a fraud was being perpetrated upon American breeders. We have for some time known that the breeders of the Island of Jersey have not entertained a very high opinion of the business capacity of some of the American purcharers of their cattle, but we should have supposed that they would at least have given them credit for knowing more than to expect to procure every year 3,000 cattle, worth the cost of importing, out of their small domain. The truth is, not one-tenth of this number is imported yearly, and if we consider the fact that we can show better Jerseys of American breeding, than any that have been imported of late, we shall hereafter import less, if we do not in time export cattle to Jersey to improve the original stock.

CHEAPER WAGES.—In the arrangement for next year's work now in order, farmers should insist upon cheaper labor. While almost every commodity used in the family has fallen back to ante-war prices, there has been very little reduction in the price of farm labor. This result of high wages has been, that a great many farmers have not only reduced the number of their help, but have dismissed them altogether, and cultivate only so much land as they can take care of themselves. One cause of this high price of help on the farm in the New England States at least, has been the demand for labor in factories. There has been a reduction of wages in the factories now, and among mechanics, and it is time we had cheaper labor on the farm. Statistics show that our farms are not supplying the increasing demands of our cities and large towns. With cheaper labor we can do this. Many of the tramps were once industrious workers, and can still be made useful. We want to see the farms once more worked up to their fullest capacities, and the production sufficiently increased to meet the demands of the home markets.

Screen for Dairy Windows.

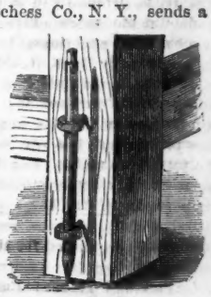
A dairy should, if possible, be lighted by a window with a north aspect. Bright sunlight upon the milk pans is injurious to the color of the butter, as is also perfect darkness. A subdued diffused light is preferable. Besides, the temperature of the dairy is rapidly increased by the sun's rays in the summer time, and the quality of the butter will be damaged by their admission. But sometimes it is impossible to so place the dairy that a north window can be secured, then a window-screen should be used. Two yards of yard-wide "Atlantic A," or "Pepperell R," brown sheeting, costing about 11 or 12 cents a yard, will make a screen for a window of more than usual size. The ends should be hemmed over a strong cord, leaving a loop or ring at each end of the cord. A hook is fixed at each upper corner of the window frame, upon which the loop or rings may be fastened by means of a light pole, with a short wire crotch or fork at the top. On each side of the window sill a screw eye should be fastened, to which the bottom of the screen may be tied by the ends of the cord. Or if it is thought preferable to have the screen not tied closely, but held away from the window a few inches for the admission of air, a short strong wire or wooden rod may be fixed to each lower corner of the screen, which may be hooked into the screw eyes in the sill. A light stretcher of wood should be fitted across the lower part of the screen, to keep it extended, as shown in the illustration. Window screens of this kind will be found very desirable for the kitchen or dining room, as they will admit a plenty of light and air, and permit an outlook. Although there will not be any present use for these screens, they can be made now while there is leisure for such work, lest when the necessity for them arrives, they may not be on hand, and no time can be spared to prepare them.



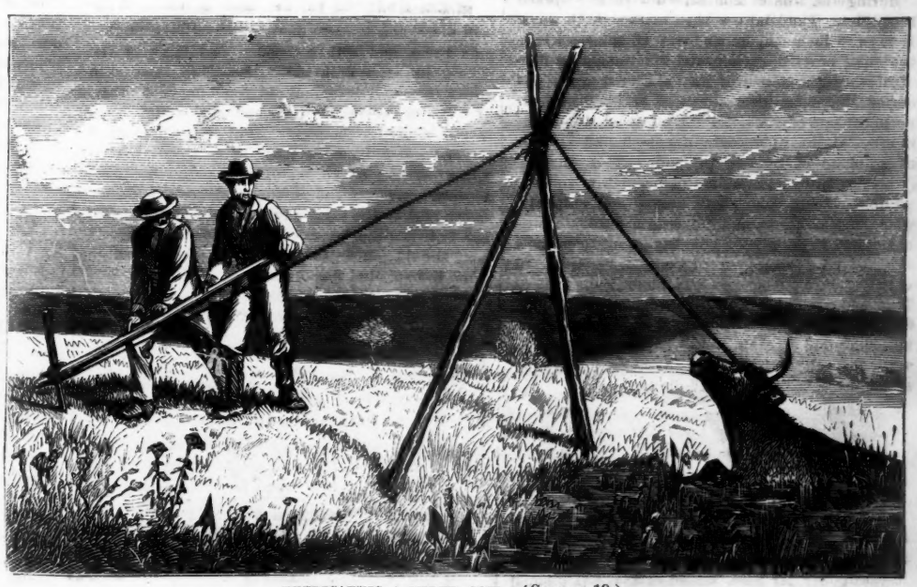
WINDOW-SHADE.

To Steady Portable Mills.

Newton Reed, of Dutchess Co., N. Y., sends a description and sketch of a contrivance for steadying portable mills, which he has used for several years. It is an iron rod of suitable size, about a foot long, fastened by iron brackets to the leg, or post of the mill. Three or four inches of the rod is a screw, and fits one of the brackets through which it runs, and can be turned up or down. The lower end of the rod is pointed, and the upper end squared, that it may be turned with a wrench. The rod is fastened firmly to the side of the post, (one on each of the forward posts), and turned down so that the point shall enter the floor sufficiently to



LEG OF MILL.



EXTRICATING A MIRED COW.—(*See page* 19.)

hold the mill from creeping while in operation. It has this advantage, that on an uneven barn floor, the steadiness of the mill may be secured by turning down the rods to suit the floor, and thus raising that end of the mill when necessary.

The Use of Artificial Fertilizers.

There is no doubt that we too much neglect the use of artificial fertilizers. It requires considerable faith, it must be admitted, for a farmer to commit his seed to the ground, helped only by a mere handful of what he has hitherto known perhaps as a drug, useful as a material for manufacturing gunpowder, or as a medicine, and look for a profitable crop in return. It has been the custom to consider bulk as an important element in manuring, and several cords or numerous wagon-loads of manure per acre as being only a moderate supply. To depend upon a few hundred pounds of artificial fertilizers to the acre is too great an innovation to become immediately popular. Nevertheless, we believe that the practice of using chemical fertilizers will soon become very prevalent. Farmers in other countries use hundreds and thousands of tons yearly of these fertilizers with profit. In fact, if the supply were to be suddenly cut off, it would cause much distress amongst European farmers, and ruin thousands of them. A not uncommon case is one of a Scotch farmer who applied 100 tons of guano in one year upon a 600-acre farm.

The use of artificial fertilizers can only grow slowly, because it is altogether a matter of experiment, and a farmer dare not try extensive experiments when failure would be ruinous. But careful trials, from which much may be learned, are being made more extensively every year. One very notable experiment in growing corn was made last season by Dr. E. L. Sturtevant, of Massachusetts, which may serve as an example for many similar trials next season; we learn that a number of farmers in Dr. S.'s neighborhood, who watched his proceedings last year very closely, are prepared to follow his method to a large extent the coming season. The experiments were made under the supervision of the Essex County (Mass.) Agricultural Society, and the results were verified by a committee appointed for that purpose. The statements are therefore entirely trustworthy. A field of 8 acres of gravelly loam was chosen. It had been in sod since 1872, and the previous crop of hay was but half a ton to the acre. The sod was plowed in May last, 7 inches deep, then harrowed, and three-eighths of the mixed fertilizer spread broadcast. The land was then marked both ways, in rows 38 inches apart, and over the places where the rows crossed each other, the remaining five-eighths of the fertilizer was scattered upon the surface. The fertilizer consisted of 199 lbs. of superphosphate of lime, 404 lbs. of sulphate of ammonia, 151 lbs. of muriate of potash, and 110 lbs. of sulphate of potash, per acre. This mixture (which according to modern nomenclature consisted of a calcium phosphate, ammonium sulphate, potassium chloride, and potassium sulphate) was calculated to supply the quantity of nitrogen, potash, and phosphoric acid for a crop of 65 bushels of corn per acre. The corn was planted the last of May, and grew slowly but healthily, and on August 8th the fodder was so luxuriant as to cause fears that the yield of grain would be light. The crop was cut on the 17th of Sept. The expenditure per acre up to this time was as follows:

For fertilizers	$27 46
Labor	12 67
Seed	30
Husking at 10 cents per bushel	8 25
Hauling to the barn	7 20
Total cost per acre	$55 88

The yield as measured and reported by the committee, was 165 bushels of ears, equal to 82½ bushels of shelled corn, per acre. There were 4 tons 240 lbs. of fodder per acre, valued at $8 per ton, equal to $33, which deducted from the cost, left $22.88 as the cost of the 82½ bushels of corn, or 27¾ cents per bushel. Two strips through the field were left without any fertilizer. The produce from these strips was equal to $21^{8}/_{10}$ bushels per acre. This represents the natural yield of the land, and leaves the balance, or $60^{7}/_{10}$ bushels as the yield or effect of the fertilizers. This $60^{7}/_{10}$ bushels of corn therefore cost a sum equal to the cost of the fertilizers used, and the cost of harvesting, husking, and handling. As a comparison between the effects of this artificial fertilizer and good barnyard manure, another experiment was made. A field was plowed in May, harrowed and manured with 5½ cords, or 12 two-horse wagon loads of 50 bushels each per acre, of almost clear cow-dung, and planted with corn in hills 38 inches apart. The total cost of the crop was $62.06 per acre. The yield was 5 tons of fodder worth $40, and 100 bushels of shelled corn, (measured by the committee), per acre. The corn thus cost 22 cents per bushel. A portion of the field left unmanured yielded at the rate of 68¾ bushels of corn per acre, leaving the balance of 31¼ bushels per acre as due to the effect of the manure. But as there would be a large portion of the value of the manure still left in the soil, an equivalent reduction should be made in the cost of this latter crop, which would considerably lessen the cost of the corn per bushel. The experiment with the artificial fertilizers is very suggestive. The short supply of manure is the greatest source of trouble amongst farmers. If the present inadequate supply can be profitably helped out by artificial fertilizers, and the means of purchasing and the skill to properly use them are available, there will be no longer any reason to complain of a deficiency of manure.

Curing Hams and Pork.

"G. W. D.," Ocean Co., New Jersey, writes: "When a slice from a ham has to be par-boiled, or soaked over night, it was not properly cured; this treatment makes it dry and hard, and deprives it of all its flavor. I have had many years experience in curing large quantities of hams, and have had the reputation of knowing "how to do it." For 100 pounds of meat take 7 lbs. ground rock salt; 5 lbs. clean brown sugar; 2 oz. pure salt petre; ½ oz. pearl ash or saleratus, and 4 gallons pure soft water. Put all in a proper vessel over the fire, and before it comes to a boil, commence skimming, and continue until all impurities have risen to the surface; when done properly, the pickle will be perfectly clear and pure. If a potato or an egg will float in it, it is all right, if not add more salt.

Hams should be left undisturbed for 3 or 4 days after killing—hung up in an airy place.

Now take one gallon of sweet molasses, 2 oz. salt petre, and 4 quarts fine ground salt, thoroughly mix them, and with a wooden paddle cover the hams, skin and flesh side alike. Lay them skin down for 3 or 4 days, and not touching each other, if it can be avoided. At the end of this time they will be ready for the pickle. Put in the bottom of a good sweet barrel, a layer of rock salt, half to three-quarters of an inch deep, pack the hams closely, cover with pickle, and weight down. Serve pork in the same way, but put a sprinkling of salt between the layers. Hams weighing 10 to 14 lbs., should remain in pickle about 5 weeks, those from 15 to 20 lbs., 6 or 7 weeks.

In smoking use corn-cobs, hickory, maple or beech. Now take marlin, or tarred rope yarn, tie one piece around the shank, another around the thick part, and passing still another lengthwise, looping to each. Make a loop to hang up by with shank down—this prevents cracking in a great degree, and retains the juices inside the skin. I need hardly say that no heated smoke should reach the hams. I believe this rock salt possesses preservative qualities not found in common sea salt. It costs about 30 cents per bushel. [This last statement would be better expressed by saying that sea salt contains substances which rock-salt does not.—ED.]

THE END OF OLEO-MARGARINE.—From the first appearance in this country of the material intended to be sold as butter, and to be used to adulterate cheese, known as oleo-margarine, the *American Agriculturist* has cautioned its readers against either entering into the manufacture of the stuff, or using it in any manner in adulterating dairy products. We took this course, feeling certain that a manufacture which could not bear the stamp of its true character upon its face, could not be honest, nor could it in the end be profitable. Our warnings are justified by the result which now appears in the shape of suits, judgments, and executions, against the "Oleo-margarine Manufacturing Company," in the New York Marine Court, for wages due to the employees, and for money loaned. The company being without assets, judgments have been obtained against the stockholders individually, amongst whom we regret to see the names of persons whose reputations helped to give life to the concern, and who now are called upon to pay their share of its funeral. This company commenced operations in October, 1873, and in December of that year the *American Agriculturist* first called attention to the objectionable character of its product. Since then the *American Grocer* and the *Boston Cultivator* have joined in opposition to it, but some other journals have supported it. Strangely enough the most active of these have been closely identified with the dairy interest. It is unfortunate for this interest that it should have been so misrepresented, for the failure at least shows that dairymen have very wisely let the "oleo-margarine" alone, to at least a very large extent.

IRON IN AGRICULTURE.—Every year the use of iron in the manufacture of implements, is extending. The best mowers now are made without a particle of wood about them, except the tongue and whiffletrees. But iron might be usefully employed to a greater extent than it now is, in the furniture of barn buildings and implements in every day use. Feed troughs of all kinds, racks and mangers, gutters, drains, gate posts and gates, fencing, wheelbarrows, and many other things now made of wood, would be much more durable and economical if made of iron. The cost would be more at first, but a set of iron furniture in the stables, barns, pens, and yards, would not need replacing in a lifetime.

POTATO BEETLES IN WINTER QUARTERS.—On passing through a potato stubble recently, we saw a large flock of crows very busy on the loose ground. The owner of the field had before stated that the Colorado beetles had descended upon his crop in immense numbers, but being too late to do any damage, he had not disturbed them. On examination we found a good many of the beetles lying dormant in the loose soil, and numberless places where the crows had dug up the ground. Evidently the crows were feasting upon the beetles, and it would doubtless be an excellent thing to give the crows ample opportunity to feast all they want to. As a help we would suggest a light plowing of potato ground at this season, to expose the beetles.

Plastic Instinct of Hens.

Since the philosophers and naturalists have taken more to observation, and less to speculation about animal instincts and faculties, the subject has gained in interest. For one thing it is clear that they have not the fixed and unalterable character attributed to them by the books. "Animals can learn what they did not know by instinct, and forget the instinctive knowledge which they never learned, while their instincts will often accommodate themselves to considerable changes." Mr. Spalding, in England, has done more than any one else in our days to make this clear. Mr. Romanes, in Scotland, has followed this up, in a recent No. of *Nature*, with an account of some curious experiments. To hatch duck's eggs under a common hen is a well-known practice, and successful, though the hen has to set a week longer than on her own eggs. Mr. Spalding tried to find out how the hen would take to a shortening of the process.

"Two hens became broody on the same day, and

I set them on dummies. On the third day I put two chicks a day old to one of the hens. She pecked at them once or twice, seemed rather fidgety, then took to them, called them to her, and entered on all the cares of a mother. The other hen was similarly tried, but with a very different result. She pecked at the chickens viciously, and both that day and the next stubbornly refused to have anything to do with them."

Mr. Romanes takes up the investigation, and the following accounts are condensed from his narrative. Spanish hens, it seems, will rarely set at all, but one of his "sat on dummies for three days, after which her patience was exhausted. However, she seemed to think that the self-sacrifice she had undergone merited some reward; for, on leaving the nest, she turned foster-mother to all the Spanish chickens in the yard. It is now four weeks since this adoption took place, but the mother as yet shows no signs of wishing to cast off her heterogeneous brood, notwithstanding some of her adopted chickens have grown nearly as large as herself." But the best story is told of an old Brahma hen, of much experience, to whom Mr. Romanes gave a pea-fowl's egg to hatch. This would not only require a week longer than an ordinary chick, which almost any hen gives into with a brood of ducklings, but the pea-chick has to be cared for much longer than the common chicken, and the object was to see how the instinct, or whatever it be, would deal with the peculiar state of things.

"The result was very surprising, for the enormous period of 18 months this old Brahma hen remained with her ever-growing chicken, and throughout the whole of that period she continued to pay it unremitting attention. She never laid any eggs during this lengthened period of maternal supervision, and if at any time she became accidentally separated from her charge, the distress of both mother and chicken was very great. The abnormal degree of pride which the mother showed in her wonderful chicken was most ludicrous, but I have no space to enter into details. It may be stated, however, that both before and after the separation, the mother was in the habit of frequently combing out the top-knot of her son, she standing on a seat or other eminence of suitable height, and he bending his head forward with evident satisfaction. This fact is particularly noteworthy, because the practice of combing out the top-knot of their chickens is customary among pea-hens." Did the son teach his mother how to do it? It should be added that a repetition of the experiment the next year with another Brahma was a dead failure, for she deserted her family at the time when it is natural for ordinary hens to do so, and in consequence the brood of pea-chickens perished.

There is a queer story about some orphan young ferrets placed under a sitting Brahma hen, who took good care of them, combing out their hair with her bill just as hens generally comb out the feathers of their chickens, frequently stopping, however, "to look with one eye at the wriggling nest-full with an inquiring gaze expressive of astonishment." We share the old hen's feeling as we read the narrative.

A Convenient Ice-Hook.

A very handy ice-hook may be made as shown in the annexed engraving. The handle is firmly fastened and keyed into a socket, at the end of which are two sharply pointed spikes, one of which serves to push pieces of ice, and the other to draw them to the shore, or out of the water, to be loaded and removed. It may be made of light iron, horse-shoe bar will be heavy enough, and there is no need to have the points steeled; it will be sufficient if they are chilled, after they are sharpened, in salt and ice pounded together.

ICE-HOOK.

How to Extricate a Mired Animal.

An animal mired in a swamp gets into a worse predicament the longer it struggles. The effort to extricate it should be made in an effective manner, so that the animal may not be encouraged to exhaust itself in repeated exertions, which are useless, and only sink it deeper in the mire. The usual method is to fasten a rope around the animal's horns or neck, and while this is pulled by some of the assistants, others place rails beneath the body of the animal for the purpose of lifting it out of the hole. This plan is sometimes effective, but it often is not, and at best it is a slow, clumsy, and laborious method. The materials needed for the method here referred to are all that are required for a much better one, which is illustrated in the engraving given on page 17. This is very simple, and two men can operate it, and at a pinch, even one man alone may succeed with it. A strong stake or an iron bar is driven into the solid ground at a distance of 25 feet or more from the mired animal. Two short rails, about 9 feet long, are tied together near the ends, so that they can be spread apart in the form of a pair of shears, for hoisting. A long rope is fastened around the horns or neck of the animal, with such a knot that the loop cannot be drawn tight enough to do any injury. The rope is cast over the ends of the rails as they are set up upon the edge of the solid ground, and carried to the stake or crow-bar beyond. The end of the rope is fastened to a stout hand-spike, leaving about a foot of the end of it free. This end is laid against the bar or stake, and the other end is moved around it so that the rope is wound upon it, drawing it up and with it drawing the animal out of the mire. The rope being held up by the tied rails, tends to lift the animal and make its extrication very easy.

How to get rid of Straw.

Many farmers in "the west," and some in what we call "the east," are troubled as to what they shall do with the piles of straw which lie about their fields. Upon the same farms with these nearly useless straw piles, many head of stock are kept, and many more might be kept, which could be made useful in reducing the straw to a condition in which it would serve as manure. If the already urgent necessity for manure upon the western and southern fields were realized, there would be little hesitation in taking measures to remove the difficulty. The chief obstacle is, that these involve either personal or hired labor; the first is objectionable to many, and the second cannot be had for want of the money necessary to pay for it. The least laborious method of using this straw and making it serve the double purpose of a shelter for stock, and a fertilizer for the field upon which it has been grown, is illustrated in the engraving on next page. Some poles are set in the ground, and rails or other poles are laid upon them so as to form a sloping roof. This is made near or around the place chosen for thrashing the grain. The straw from the thrashing machine is heaped upon the rails, making a long stack, which forms three sides of a square, with the open side towards the south, and leaving a space beneath it in which cattle may be sheltered from storms. In this enclosure some rough troughs or racks may be placed, from which to feed corn. Here the cattle will feed and lie, or will lie at nights under shelter, while feeding during the day upon corn in the field. As the straw that is given them becomes trampled and mixed with the droppings, a further supply is thrown down from the stack. The accumulation may be removed and spread upon the field to be plowed in when it is so required, and the stakes pulled up and carried to another place, where they may be needed for the same purpose. Such a shelter as as this would be very serviceable for the purpose of making manure, even where straw is scarce, as in parts of the southern states. There pine boughs may be made to serve as a covering, and leaves, pine straw, dry pond muck, swamp muck, "trash" from cotton fields, corn stalks, or pea vines, and any other such materials may be gathered and thrown from time to time beneath the cattle. Cotton seed meal, straw, and coarse hay, would keep stock in excellent order, and although there may be little snow or ice during the winter months in those states, yet the animals will be very much better for even this rude but comfortable shelter. In many other places such a temporary arrangement will be found useful in saving the hauling of straw, stalks, or hay, from distant fields, and the carting of manure back again to them. It will be found vastly easier to keep a few young cattle in such a field, and go thither daily to attend to them during the winter when work is not pressing, than to haul many loads of hay or straw to the barn at harvest time, or to haul many loads of manure in the busy weeks of spring.

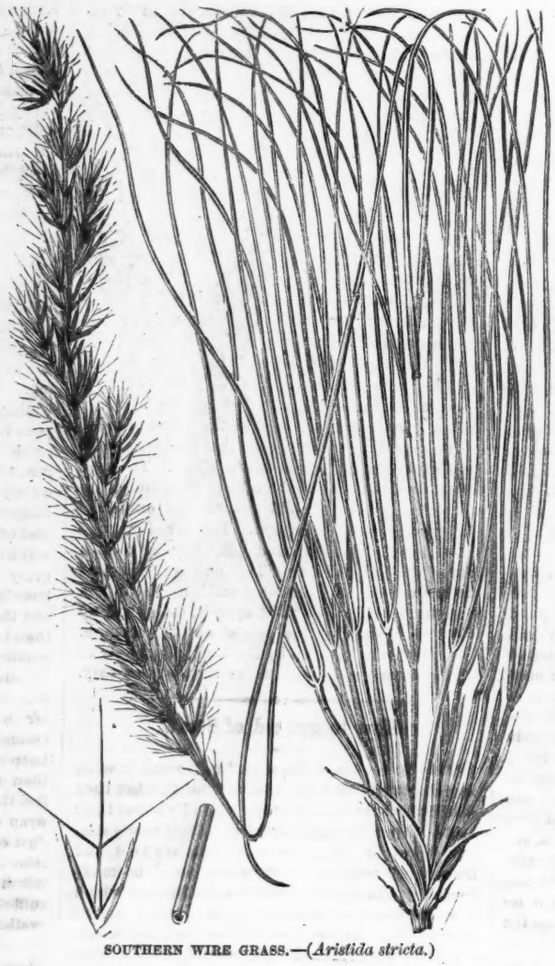
Keeping Apples.

As the crop is short, and prices have ruled high, it is all the more important to preserve apples in the best condition. The main element of success is a low and uniform temperature, just above freezing. The house cellar is the farmer's fruit-room in winter, and if properly managed, answers the purpose very perfectly. But there is a great deal of carelessness in guarding cellars against extreme zero nights, and the apples and vegetables are frequently frozen before the owner suspects any danger. Banking the under-pinning with a thick mat of leaves, straw, old hay, or evergreen boughs, will keep out the frost. These are within reach of every farmer, and are easily kept in place with boards or poles. But some cellars are very moist, and the temperature is likely to be too high rather than too low. This can be remedied by having a window that can be shut or opened at pleasure. By consulting a thermometer, which costs but a trifle, it is quite easy to keep the temperature in the cellar between 33 and 40 degrees, which is even enough for all practical purposes. The apples keep better in barrels, or in small tight packages, than in open piles or shelves, because they do not feel the changes so soon. For the same reason some wrap each apple in paper, or pack them in sawdust or land plaster. This requires a considerable labor, but nice fresh apples in May and June are worth working for. In dry cork sawdust they keep sufficiently well without wrappers. If this is not available, dry hard-wood sawdust should be used in preference to pine or other resinous woods. These affect the odor, and sometimes the taste of the apples. If no packing is used, the barrels should be overhauled once a month, and if any decayed apples are found, they should be carefully removed. Keep the barrels headed. Look at the thermometer every night and morning. If too warm, let in more cold air, if too cold, shut the window entirely. It takes but a moment to regulate the temperature. By this simple process we have never failed to keep winter apples in good condition until spring.

PLANTAIN.—Popular names sometimes deceive popular writers. In a late number of the Gardeners' Chronicle the place of honor as the leading article is assigned to a long story on the Travels of Plants, in which are one or two things hard to be understood—such as that "Alabama and the Gulf states are unsuitable to maize on account of their excessive warmth," and at the close, the following: "In tropical America Indians named the Plantain 'the Englishman's Foot,' a name not inappropriately bestowed, since it accompanied him to all suitable districts."—The mention of tropical America, and the account which the writer had just been giving of "the Plantain and Banana" and their dispersion, shows what he had in view. But we doubt if the edible Plantain "accompanied" the Englishman anywhere. Wherever it is, it probably preceded him. No doubt the writer had somewhere read the familiar statement, which we believe began with Jocelyn, in "The Rarities of New England," (1672), that in North America the Indians called the Wayside Plantain (*Plantago major*), "the White Man's Foot," because it springs up wherever this has trodden.

The Wire Grass of the Southern States.

We know of nothing more annoying than to come across a vegetable product of any kind, and to be unable, for the want of proper materials, to trace it to the plant which furnishes it. In commerce there are many exotic woods, the source of which is still unknown, and though Cuba bast had long been known in trade, and there were fine specimens of it in the Kew museum, it was years before Sir William Hooker could get on its track and ascertain the plant which furnishes it. With exotic products this difficulty is not to be wondered at, but it would seem that there need be no trouble in tracing up all native things of the kind to their origin. Yet we have sometimes met with no little difficulty in this. Several years ago we were in one of the southern cities, and seeing a very neat basket, inquired as to the material; all that we could learn was that the basket was woven by the negroes "up country," of some kind of grass. The owner, seeing our interest in the basket, made us a present of it, and it has been a constant source of dissatisfaction for the reason that we did not know what it was made of. In a notice of the recent Georgia State Fair, given last month, mention is made of a collection of native products exhibited by Dr. P. Stotesbury, of Clinch Co.; in looking over the collection, we came across a bundle of the very material of which our basket was woven, and learned that it was "Wire Grass." There are two plants called by this name at the north, *Eleusine Indica*, a low flat-leaved introduced annual, and *Poa compressa*, with short leaves and a flattened stem, but this "wire grass" was neither of these. This as exhibited, was a bundle of cylindrical leaves as round as a wire and tapering towards the end, 18 inches or so long, and quite unlike any grass we had ever seen growing, or at the time could call to mind in herbarium specimens. Of course we endeavored to find out something about it, and the discussion concerning it brought together a number of intelligent gentlemen from different parts of the state, from whom we found that the plant was perfectly well and most favorably known, and we could learn everything about it, except its name. Some were quite sure that it never bore any flowers or seed, others thought they had seen something on it like an oat, but not one could give any satisfactory account of the only part by which it could be identified — the flower. Engaging several gentlemen to watch it next spring, and send the flowers, should any appear, we felt hopeful that we should some time find out the name of this mysterious grass. Soon after our return home, we, to our great delight, received from Dr. Stotesbury a letter containing a specimen of the Wire-grass with its flowers, and the whole matter was cleared up at once. It is *Aristida stricta*, which we had never seen growing, but of which there were in the herbarium specimens from several southern localities.



SOUTHERN WIRE GRASS.—(*Aristida stricta.*)

There are about a dozen species of *Aristida* in the Atlantic states, north and south, and many more in the far west; the structure of the flowers is very simple, and so unlike that of other grasses, as to be readily recognized. A single spikelet is shown at the lower part of the engraving; it consists of two glumes, (or empty chaff), and a single floret of two palets, which enclose the seed; the upper palet is included in the other, and not visible, but the large lower palet is terminated by three bristles, or awns, which in this species are nearly the same length, but in others vary greatly, but in all they are manifest. The northern species all grow in the most sterile soils, and are regarded as altogether worthless, the only one that has a common name being known as "Poverty Grass." The Wire-grass is a perennial, and is disposed to form large tufts, with numerous radical leaves from 12 to 18 inches long; the blade is rolled in from each edge, so that instead of being flat, as in most grasses, it is cylindrical and wire-like; an enlarged section of a leaf is shown in the engraving. The flower stalk, 2 to 3 feet high, is leafy, and bears a spike-like panicle of flowers of the character we have described; the engraving shows the plant much reduced in size, with the flower and stalk bent, to get it within bounds. This grass grows in the pine districts of Georgia and other southern states, and is not found north of Virginia; it is held in the greatest esteem as a food for cattle, and in Georgia "wire-grass beef" is boasted of as being superior to that produced in any other part of the country; it is the great reliance of stock-growers in the districts where it is abundant; like other perennial grasses, it does better for annual burning off, and this is usually burned in order to get a tender growth for the calves. This grass is regarded as valuable in sheep pastures, not so much for the food it affords the sheep directly, as for the protection it gives to more tender herbage.

The Shrubby St. John's-Wort.

Probably almost every one who notices weeds at all, is acquainted with the common St. John's-Wort, *Hypericum perforatum*, which, though introduced from Europe, has made itself quite at home throughout most of the older states; it is a rather pleasing plant, on account of its neat habit, but while it is showing its prettily dotted leaves, and clusters of yellow flowers, it is all the while at work below ground, pushing out its roots and gaining a footing upon the soil from which it is very difficult to dispossess it. Those who have had to contend with this weed, will be surprised to learn that any of its im-

STRAW SHELTER FOR CATTLE.—(*See page* 19.)

mediate relatives have any merit; the native species all have the negative merit of not intruding themselves upon cultivated grounds, and some of the shrubby ones are sufficiently desirable to be brought into the garden. There

large flowers, with fewer in the cluster than the preceding; this is offered in some catalogues at home and abroad, but on ordering it we have in every case received the other instead. Some of the southern species are ever-

time or money to expend upon them, and while we have done this, we have endeavored at the same time to keep our readers advised as to all that was new and desirable among bedding plants, as we hold that the advocacy of either

THE SHRUBBY ST. JOHN'S-WORT.—(*Hypericum prolificum.*)

THE CLETHRA-LIKE LOOSESTRIFE.—(*Lysimachia clethroides.*

are several shrubby species, mainly in the southern states, but the one most widely distributed, *Hypericum prolificum*, is especially known as the Shrubby St. John's-Wort, and extends from New Jersey to Michigan, and Illinois, and is also very common southward. It is a much branched shrub, one to four feet high, and when not crowded forms a handsomely rounded bush, with abundant foliage of a pleasing warm green color. The leaves, one to two inches long, vary much in shape, but are mostly lance-oblong, narrowed at the base and obtuse at the apex. The bright yellow flowers are in terminal and axillary clusters, and are produced in the greatest abundance from July to September, and after the flowers have all fallen, the clusters of pods, often tinged with red, continue to be ornamental. One form of it, the dense-flowered (var. *densiflorum*), grows taller, is more branched above, and has smaller and closely crowded leaves and flowers. This, though a native of the pine-barrens, does well in the garden, and is the form from which the engraving was made. We do not consider it so pleasing a garden shrub as the ordinary wide-leaved form, which by an annual pruning may be kept only a foot high, and is well suited for the front row in clumps of shrubs. Kalm's St. John's-Wort, (*H. Kalmii*) is a very local shrubby species, found only at Niagara Falls, and a few other northern localities; it has glaucous leaves, and

greens there, but we are not aware that they have been tested in northern gardens.

The Clethra-like Loosestrife.

While we admit the utility of what are popularly known as "bedding-plants," *i. e.*, soft-wooded tender plants, such as geraniums, verbenas, etc., which have to be set out each spring for summer effect, we are glad to see that they are not, as at one time seemed probable, to drive all other plants from the gardens. The mania for these was at one time so strong that the good old-fashioned plants were in danger of being entirely overlooked; but now a more sensible view prevails, and it is found that each class of plants has its place, which cannot be properly filled by the other, and that we cannot well do without either. The columns of the *American Agriculturist* bear abundant evidence of the fact that we have endeavored to keep alive the love of plants for their own individual merits, and not for the color effects that may be produced by them when massed in hundreds and thousands. We have strongly advocated the claims of those plants known as herbaceous perennials, which, when once planted, keep on year after year, without demanding other care than an occasional subdivision, as being especially suited to those who love flowers, but have not much

class of plants, to the neglect of the other, is not in the true interest of horticulture. In a visit to the gardens in the vicinity of Boston, a few months ago, where the bedding system is carried to greater perfection than elsewhere in the country, we were glad to see that the herbaceous perennials had also a place, and rows of gorgeous columbines, herbaceous pæonies, our favorite Japanese Astilbe, always so beautiful whether in leaf or flower, and many others, offered their attractions in their proper places, as well as did the brilliant geraniums, achyranthes, coleuses, and other bedding plants. The list of good herbaceous perennials is already a long one, yet we are always pleased when we can add to it a new plant of real merit, and it was very gratifying to come across, in one of the gardens we visited, a clump of *Lysimachia clethroides*, a new Loosestrife from Japan. The Loosestrifes are best known through the common Moneywort, (*L. nummularia*), common in gardens, and much used in hanging baskets; but this is very much unlike most of the species in habit, as it has prostrate creeping stems, and solitary flowers from the axils of the leaves. We have several wild species which are erect, one of them, the Upright Loosestrife, figured in Sept., 1871, with its flower in a long raceme at the top of the stem. This new species has a similar habit to the wild one referred to; it has a strong stem, two feet or more high, with lanceolate leaves,

and dense terminal spikes of pure white flowers, which often gracefully curve at the apex. The resemblance between the flower-spikes of this, and those of the beautiful Sweet Pepperidge, or *Clethra*, of our swamps, suggested the specific name, *clethroides*, clethra-like for the plant. We are informed that this has one quality unusual in a herbaceous plant, *i. e.*, the leaves take on autumnal colors, and show fine tints of red and yellow, much after the manner of those of the Sugar Maple. Apparently the Loosestrife is not known in British gardens, and the few persons who have it here do not know how or when it was introduced; but it is not unlikely that the seed was accidentally brought in with other Japanese plants. A plant with the merit of this will soon find its way into general cultivation.

How Flowers are Fertilized.

BY PROF. ASA GRAY.

FIRT ARTICLE.—CAMPANULAS, OR BELL-FLOWERS.

One of the leading horticultural papers some time ago had an article on Campanulas; in which it was asserted that there were no hybrid Campanulas, and a reason was given for it. The reason was, that these flowers are fertilized in the bud, so as to give no chance for natural crossing.

I am not sure it is true that there are no hybrids in this genus. It may be that the writer jumped to the conclusion that there are none, because "the flowers are fertilized in the bud." And I am very sure that he is mistaken about that. The account struck me, at the time, as a good case for showing how easy it is to be mistaken, even about a matter that one sees with his own eyes, and would be ready to swear to. I presume that the writer saw the thing correctly; but he did not see into it, much less through it. As I believe he is not the only horticulturist who has fallen into this same kind of mistake, as the mistake is one which a hasty observer would be almost certain to make, and as the case is a very instructive one in several respects, I think it worth while to bring out the facts by the aid of a few illustrations.

Fig. 1.

Our readers will mostly have to take this account upon trust until next summer, and then they can see for themselves, as, indeed, it is to be hoped that the younger ones will. For these Campanulas are among the commonest as well as handsomest garden flowers—not forgetting also the Blue-bells or Hare-bells of our rocky woods. Almost every garden has Canterbury Bells, and many of them two or three perennial species;—such as *Campanula persicæfolia*, (called Peach-leaved Campanula, though the foliage would never suggest to us that name), with its handsome pure white upright bells; and later in the season *C. Carpathica*, (the Carpathian Bell-flower), with blue flowers much resembling our wild Blue-bell on a larger scale, is common. Then there is the Great-flowered Campanula, now called *Platycodon* by the botanists,

Fig. 2.—BELL-FLOWER CUT OPEN.

conspicuous for its balloon-shaped corolla in the bud, opening into a broad and flattish bell. All of these tell the same story, with a little difference in the details only. The one which our sketches were made from, is *Campanula rapunculoides*, which we have not got a good common name for, though the plant is getting to be a weed around old gardens, and escaping to the road-sides. The English botanists call it Creeping Bell-flower, on account of its running roots, but its spiry stems are bolt upright, so that this name has no sense to those who do not look below the surface. It is one of the least showy and least desirable of all the Bell-flowers; in fact, is not desirable at all, but in our gardens is a nuisance, on account of the way it has of spreading by the root, every bit of which left in the ground will grow, so that it is not easy to be rid of it when it has once taken possession.

Although I may presume that most of the readers of the *American Agriculturist* know a little botany, yet, to make our narative plain to all, it may not be amiss to explain what we mean by fertilization in a flower. Within the leaves or cup of a perfect flower, such as of a Campanula, are the parts answering to the two sexes, stamens and pistils; the former surrounding the latter. The engravings, which show the flower sliced lengthwise through the middle, show, in fig. 1, two of the stamens in the bud, and in fig. 2, three of them as they appear in a blossom that has been a day or two open. The stamen produces *pollen*—grains appearing like a yellow powder to the naked eye—contained in the *anther*. This in the flower-bud shows a very short stalk; in the open flower (fig. 2), this stalk, (called the *filament*), has lengthened. The *pistil*, in the center, has at bottom the *ovary*, containing numerous *ovules*, which are to be seeds; the column which surmounts it is called the *style;* and the three forks at the top of this, or more strictly, the inner or upper faces of them, are the *stigmas*. Now the upshot of the matter is, that, for the setting of seed, *i. e.*, that the ovules may have an embryo formed in them, and so become seeds, it is necessary that pollen should be placed on the stigmas. When this is done, each grain of pollen sends down into the stigma, and through the style a thread-like growth, which reaches the ovules and *fertilizes* them. Unless pollen is deposited upon the stigma, and acts in the manner described, there is no *fertilization*, and of course no seeds.

Fig. 3.

Fig. 4.

The writer of the article mentioned at the beginning—some English horticulturist, I have entirely forgotten who it was—says that Campanulas are fertilized in the flower-bud before it opens. Seemingly he had good reasons for saying so. For the five anthers shed all their pollen while still imprisoned in the unopened corolla. By the time this opens, (as seen in our section fig. 2, which shows three of them), the anthers are empty and beginning to wither. Moreover, the pollen which they contained, has been bodily deposited upon the pistil! The style, as shown in the center of fig. 1, is beset with bristly hairs, rendered sticky by a slight glutinous moisture. As the five anthers, closely surrounding it, open down the inside, and discharge their pollen, this is nearly all caught and retained by these hairs, which are loaded with pollen. (The hairy surface with pollen sticking to it is seen on the style in fig. 1; and in fig. 2 some of the pollen is still seen on the upper part of the style, close to the stigmas.) Then the corolla expands, the style lengthens below, the withering empty anthers lie loose towards the bottom of the flower; and so the work seems to be done.

Not at all! The pollen is on the *style*, and, as concerns its office, it might just as well be still in the anthers; for not a grain of it acts there to fertilize the seeds. The three forks of the top of the style are closed at first, and so they remain for a day or two after the corolla opens, completely shutting in the stigmas, which occupy only their inner face. Even these forks have their backs loaded with pollen, which is thus brought very near indeed to the place where it is wanted, but not at it; and the adage holds true, that "a miss is as good [or as bad] as a mile." With all this seeming, no "fertilization in the bud" has taken place. If that is what is intended, the thing is a manifest failure.

Indeed, from this point of view, it is difficult to see how the flower is to fertilize itself at any time. After the flower has been open a day or two, and the lower part of the style has grown considerably longer, so as to carry up higher the pollen-loaded portion, the forks at the top separate, spread out horizontally, or recurve, and expose the stigmas, as fig. 2 shows. But, whether the flower stands erect, as in some species, or nods or hangs inverted as in others, there is small chance that any of the pollen gets upon the stigmas.

What really takes place is this. When the blossoms open, they are visited by insects, especially by bees. They come perhaps for a little nectar at the bottom of the corolla, but mainly for pollen, a most nutritious material. This they gather from the style and carry away with them, passing from flower to flower. When a bee comes to a flower freshly opened, it finds abundance of pollen, in which it revels, and with which it loads itself; but the stigmas, snugly closed, get none of it. When it flies to an older flower, it comes directly against the three-rayed stigmas, outspread at the entrance, and dusts them with pollen; and so on from flower to flower. Instead of self-fertilizing, it depends upon the bees. The bee does the work on shares; and there is plenty of pollen provided for both.

There is a rarer sort of Campanula in our garden, called *Symphyandra*, which means "anthers joined together." In the flower-bud they are as in fig. 3; in the older open flowers, as in fig. 4. The corolla in both the engravings is cut away. You have only to imagine this in the form of a bell around these figures, which stand in place of the clapper. The difference between this flower with the long name and true Campanula is only this, that the anthers never separate. They open inside in the bud, and discharge their pollen upon the hairy style in the center; then this lengthens; in fig. 3 the tip of the style is seen just projecting at the top; in fig. 4 from an old flower, after brushing all the pollen out of the closed tube, it has carried it up to a convenient position for the bees; and the three stigmas have opened, ready to take what the coming bee may bring, before loading up anew from the bountiful store on the style below.

In a second article we will see how this idea is carried out, with a difference, in flowers of another family. The moral of this story is: Look twice before leaping to a conclusion.

Notes from the Pines.

Our correspondent at "The Pines" sends us full and seasonable notes, but we have only room for the following novelty in Water-Cress culture. He says: Ever since I have lived here, I have been anxious over the subject of

Water-Cress.

There is no brook on the place, and the river is not available. I have wondered if sufficient water might not be found by tapping the hill with a horizontal well, have considered cemented tanks, and various other contrivances, but those who have written, and those who profess to know, have all said in effect: "It is of no use to try to grow water-cress, unless in a running stream with a gravelly bottom." I turned from these authorities with a resolution that some time or other I would convince myself, at least, that water-cresses could be grown without "a running stream and gravelly bottom." It was one of the "things to be done" down on my mental memorandum book, and I hardly know whether I was pleased or not, on opening the last *Gardeners' Magazine*, (Eng.), to find that Shirley Hibbard had "gone and done it," and thus quite cut me out. Well, it is only another

illustration of the fact that important discoveries are rarely left to one person, and from the discovery of America, through steam navigation, telegraphs, to the use of ether in surgery, there have been several claiming to be first. On the whole, I thank S. H. for carrying out my experiment, as it allows me to publish results a year sooner. To condense the whole matter, he grows better cresses in pans and pots, than can be raised in brooks; though he has an abundance of cress growing in a brook upon his place, he prefers the pot-grown. Almost any pot or seed-pan will answer, but he prefers one he had made especially for ferns, which is 15 inches across, and 8 inches high. These he half fills with broken bricks and old mortar, or lumps of chalk, puts on a layer of moss, and over that is placed good, rich soil, no matter how coarse, and well pressed down and rounded up; on the surface

WATER-CRESSES GROWN IN POT-CULTURE.

of this, bits of rooted cress or cuttings are dibbled in, about 3 inches apart. The pot sits in a "stand," or saucer as we call it, holding 2 inches of water. The newly planted pots are kept in the shade for a few days, and then exposed to full light and air; in summer the plants give a cutting in less than three weeks after planting, and give three cuttings in succession, when the pot is replaced by another started later. This engraving is of Mr. Hibbard's 15-inch pot, which he says gives him half-a-peck of the finest possible cresses at a cutting. This may seem like very small work to those who can grow cresses by the acre, but the thousands to whom, as to myself, cress in spring is almost a necessity, and who have no brook in which to grow it, and are too far from market to buy it, will be very thankful to Mr. Hibbard for pointing out the way in which, by a little trouble, we may enjoy that which has heretofore been denied us. In England the pots in winter are protected by frames, but with us, unless in an unusual season, we could not expect much growth unless in a heated greenhouse. Those who do not know where to get cresses to start with, can begin with seeds, which are kept by the seedsmen; these may be sown in a seed-pan or box, in soil kept quite wet, and pricked out in place of the cuttings in the pots where they are to grow. Mr. Hibbard tried various experiments, such as immersing the pots at various depths, and up to the brim and over, but he claims that the crop is better with 2 or 3 inches, than any other depth of water, and that the product is vastly better than that grown in running streams. Mr. Hibbard first began pot-culture to keep a new and superior variety, the "Erfurt Sweet Cress," distinct from that in his brook. Some of our seedsmen keep the seeds of this. I see no reason why an equal success should not be had in this country, at all events I shall try, and so no doubt will many others.

THE HOUSEHOLD.

☞ (*For other Household Items, see "Basket" pages*).

Home Topics.

BY FAITH ROCHESTER.

The Coming Grandmothers.

That means you and I, who are now in the prime of life, bearing the burden and heat of the day. The years roll on more and more swiftly—or seem to accelerate their passage—and the grey hairs come, one by one at first, and afterwards by scores.

The dread of growing old seems to me as unreasonable as the common fear of death. One does not like the prospect of becoming a burden to ones' friends, but can not we prevent such a calamity by proper foresight and self discipline in these earlier years? Persons who honestly suppose that childhood is the "happiest stage of life," have little idea of the real value of life as a school, where most excellent lessons are to be had by all teachable souls. Such ones like to get *experience*, and it seems likely that coming years will not fail of yielding that, as past years have already done. When fresh lessons are set us in this great school of life, we often fail to see them in that light, and call them troubles and afflictions. I have great contempt for my own weakness in that respect. I should think I had had lessons enough already, to begin to coöperate more cheerfully with the Great Teacher in the work of my own education; but I still shrink from my tasks, and forget how the great fact of Immortality throws all these light afflictions, which are but for a day, into insignificance.

How to get the *best* of these ever-present experiences, so that we may grow stronger and sweeter in spirit, as years go by—more coöperation with the Infinite Goodness, which underlies and works through all things for the ultimate good of the whole—that is the present and unceasing problem.

Just now, with most of us mothers, the way is marked out. Each day is full of duties crowding thick and fast upon each other. For many of us the way seems very straight and narrow. But by-and-by our babies will be busy out in the world. One by one they will fly away from the home nest, and *perhaps* there will then be some leisure—a little afternoon of life, when what work we do may be done from choice rather than from necessity. Then what?—Snuff-boxes and knitting work?—The former have pretty much gone out of use already, and when we have become grandmothers, will scarcely be known, great comforts as they were to the grandmothers a few generations ago. The knitting work of the dear grandmothers must not be scornfully mentioned, so greatly does it add to the comfort of thousands of families; and if machinery has not taken this work out of reasonable reach, by the time that my own grandchildren arrive on this planet, I, for one, shall cheerfully do my grandmotherly share of the family knitting. Just so of all the little helpful tasks that good grandmothers are wont to perform. There seems to me something almost angelic in the sweet patience and sympathetic assistance one sometimes finds in aged women. They seem to have ripened properly into human beings, and it delights me when such old women tell me, as some of them do, that their last days are their best days. It ought to be so. They may be mere children still, in scientific and literary attainments, and though this does not add to the charm of character, neither does it detract therefrom. It grows on me more and more forcibly, that St. Paul was right in his beautiful epistle in which we are taught: better than all knowledge, or doing of great deeds, are faith, hope, and charity—"And the greatest of these is charity."—A good loving heart greatly outweighs what we call knowledge. If to the loving womanly heart be added mental power and culture, then we have "A perfect woman nobly planned."

I fear this seems like preaching, and I must "draw to a close." This then, briefly, is the thought I wished to communicate: our seed time for our coming grandmotherhood—if we already have children—for our old age in any case—is not yet past. By regular and temperate habits, we may preserve or improve our health, so that we may be able to take care of ourselves, and perhaps help others in some way, when we are old.

A Variety of Meat for Farmers' Tables.

Farmers who live near a good market have no difficulty, outside the state of the family purse, in securing some variety in the meat of their tables. But many farmers can not avail themselves of the regular butcher's wares. In most cases they either depend too much upon salt pork, or use too little meat. To go without meat entirely, one needs a generous variety of grains, vegetables, and fruits. Those who live mainly upon bolted flour, potatoes, and tea and coffee, suffer a kind of slow starvation, which tells at last seriously upon the health. Very likely they over-eat, and so derange the liver, and set the whole physical system out of order. They over-eat in the instinctive endeavor to secure from inadequate materials, the elements demanded by their bodies to maintain strength, and repair the daily waste. If even our farm animals require a variety of food, or a combination of different foods, in order to get the best of each and all kinds—as Prof. Atwater teaches the readers of the *American Agriculturist*—it is quite reasonable to suppose that human beings need a variety also. All experience teaches that men thrive best on a varied diet. Women especially suffer from the narrow range of food materials often supplied for winter consumption, since their in-door life affords less aid to digestion, and creates a feebler and daintier appetite than out-door workers enjoy. There is a good deal of excuse for their ill-health, in the meager supply of good and palatable nourishment found in their every day fare.

I am not at all sure that meat is a necessity, even for laborers. But if families who have lost faith in pork, merely leave that out from their bill of fare, and go on living in other respects in the old-fashioned ways on bolted flour bread and pastry, and a few varieties of vegetables, with a small supply of fruit, the change may possibly be for the worse rather than for the better. I have lived long at a time where it was very difficult to get fresh meat, or meat of any kind, and no one seemed to feel its lack if we had plenty of good graham, oat-meal, and corn-meal, with beans and peas for soup. But if we are confined mostly to fine flour and potatoes, a craving for meat is sure to follow.

Salted meat is always inferior to fresh meat, except as affording variety, but it possesses considerable value as food if properly freshened and softened by long and slow cooking. Dried beef, though still less nutritive than corned beef, is a fine thing to have in the house, as an appetizer

when well pickled and dried and shaved in very thin chips, and better still when soaked and cooked with cream gravy. By proper care one can have these all the year round. For winter use, beef

Fig. 1.—FRAME OF WASH-STAND.

preserved in a frozen state is still better, and almost as good as absolutely fresh meat. It may be packed in snow or, (better), in well drained ice, or, (better still), it may be frozen in pieces suitable for use, wrapped in clean brown paper, each piece separately, and packed in chaff, bran, or hay, in a cold place, so as to remain frozen until late in the spring. In the use of an ice-house I have had no experience. Other meat than beef can be preserved in the same way. Barrels or boxes of poultry or wild game may be kept frozen, in a fresh state, for winter use. It is said to be best to put a bit of charcoal in the cavity of each dressed fowl, with lumps here and there between them, as they are packed. Charcoal will remove all offensive smell or flavor from meat already somewhat tainted from too long exposure to the warm air. Fresh fish can be kept frozen very easily, for winter use. When you wish to use a fish, you can shave the outside clean with a sharp knife, and then thaw it by putting it in *cold* water for a little while. In thawing the fish, fowl, or piece of frozen meat in cold water, (for this is the proper way to thaw all meat), a crust of ice will be formed upon the surface, and you can either peel this off or wait for it to melt off in the water. Fish and fowls of various kinds can be kept in brine, (each class by itself), for use at any time of year. But persons who live near a river or lake where fish abound, can catch fresh fish at most any time in winter, or purchase of the fishermen who take them through the ice holes with spears. Those who keep poultry can kill and dress it as they need it, though it may be economy to freeze and pack in the fall a quantity for winter use.

Women's Under-Garments.

I still receive repeated inquiries in regard to women's sensible under-clothes. It does not seem to me necessary to send *anywhere* for patterns. The idea is very plain. Make a long-sleeved, high-necked, easy-fitting waist, with buttons around the bottom. Gore this over the hips, and put on two or three rows of buttons if you like, one row for the drawers and one for skirt; another row, the middle one, for "dress drawers," if you use them. The remainder of the combination garment, (a combination of waist and drawers, which together make a complete and comfortable under-suit), con-

Fig. 2.—WASH-STAND COMPLETE.

sists of drawers which may be cut like any garment of the kind, of cotton for summer use, open in the usual way, and so high in the back as to admit of leaning far over without bursting the buttons from the back of the waist; or they may be made for winter long and close at the ankle, left open at the bottom for a few inches to admit of their lapping smoothly under the stockings. There is room for individual taste and preference in several respects, as whether the waist and drawers shall be permanently united or buttoned together, (I prefer the latter for my children and myself), whether the waist shall be made close-fitting or more like a sack, and whether the drawers shall be closed or not.

I think that any woman who has sense enough to cut her own ordinary clothing, can cut and make these new-fangled garments without any patterns whatever, except her old dress-waist and drawers patterns. If she has a well-formed bust, she will do well to cut out a place in the front and set in a gathered strip which will give looseness and ease. Care must be had that every part is sufficiently loose for comfort and health, big arm-holes, loose bands, and room in all directions for bending the body. For winter many still prefer to buy merino under-suits—vests and drawers. These can be improved variously. One improvement is to cut out the senseless breast "pockets," and in their place insert a strip fulled a little at both edges, made of the best part of some old under-suit or merino stocking legs. Another improvement is the cutting off of the vest or jacket at the waist line, (and the cut-off portion will answer for breast strip and patches), finishing it with a loose band with six or eight buttons, to which the merino drawers are buttoned. Over this some wear another suit, (waist and drawers), of flannel or ladies' cloth. I make these outer drawers with a lining, and for general use I know of nothing better for the drawers than the lighter shades of water-proof cloth. These are called by some "dress drawers," and are sometimes only used for out-door wear. I value them more than any skirt for steady comfort on winter days, in-door or out. It is well to cut them gored at the bottom, three or four "darts," so to speak, (or "biases," as I think some would call them), little short gores anyhow—so as to make them fit around the stocking inside the top of the laced boot, and if they are long enough so that they do not pull away from the boot in walking, they will hang over a little at the bottoms, as though gathered and fastened with a band.

Home-Made Furniture.

Many a housekeeper has a room that is not used often enough to warrant the expense of furnishing.

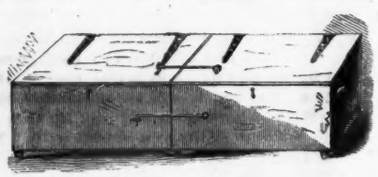


Fig. 3.—THE BOXES.

She would fit it up for a visitor—or it may be a boarder, but for the question of furniture; such rooms can be fitted with all the essentials, except the bed-stead, at a very small cost, and young people who go to house-keeping on small means may, by the exercise of a little skill, make their modest sum set apart for their outfit, go much further than if it were all expended at the cabinet-makers. We have now and then published hints in this direction, and we give here two more useful articles which any one of ordinary tact, may make. The first is a wash-stand; the engravings show it undressed and dressed. The frame-work is a barrel and a box. Nail the hoops upon the barrel so that it may not get rickety; the box should be large enough for its edges to project beyond the swell of the barrel all around, about 20 by 24 inches is a convenient size; the box is without top, and has one side removed; all the other parts should be firmly nailed; it is then nailed securely to the barrel, as in fig. 1. It is then to be draped, as in fig. 2, with such material as may be at hand; if new stuff is to be bought, an inexpensive light chintz will answer; this should be tacked on in plaits, to give a full appearance; or some light blue or pink paper muslin may be used, and some open material, like curtain lace, or even mosquito netting, tacked

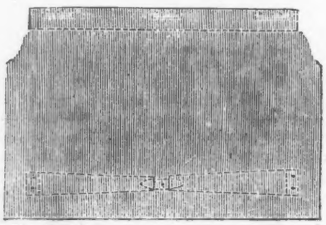


Fig. 4.—TABLE AND BACK OF LOUNGE.

over it in folds; an old dress may come into play for the drapery, or other material that may be at hand. The box portion, if it is to be used much, had better be covered with enamelled cloth at least for the inside of this part, which can be wiped off as occasion requires, or the box may be covered with the same material as the rest, and some simple tidy thrown over it to catch the spatters....The second article combines in one a bed, a lounge, two ottomans, a table, and two chests, and will be very useful to those who have to make the most of a little

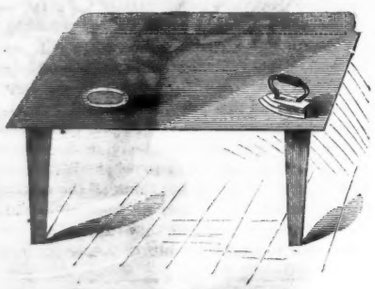


Fig. 5.—THE TABLE IN USE.

room. The starting point is two good, strong, well made boxes, the size of which will depend upon the use to be made of the affair. If to be used for a bed, they must be wider than if for a sofa alone, probably 2 feet is the least possible width, and 30 inches be still better; the length of the two together should be at least 6 feet. These boxes should be provided with well hinged lids, with casters, by which they may be readily moved, and three hooks, one at top, back, and front, by which the two boxes may be securely fastened together, as shown in fig. 3. The back to this sofa is arranged "a double debt to pay." It is made very much like the ironing table figured in August last; it is hinged at the top to a cleat, and has legs to support it when used as a table, (fig. 5), and when not so used the legs are folded under, as shown by the dotted lines in fig. 4, and the whole hangs nearly down to the floor, to serve as a back to the lounge. These are the foundation; for a covering, the back is provided with a quilted chintz cover, which is fastened in place by means of rings which hook over brass-headed nails in the cleat. The boxes are draped separately with the chintz in folds, and covered with a thin hair mattrass, made

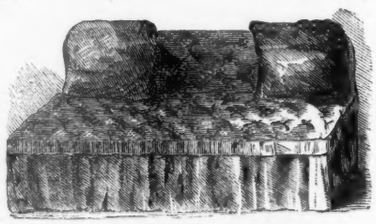


Fig. 6.—THE LOUNGE AS FINISHED.

in two parts, and covered with chintz, with a wide fluted ruffle all around the edge. Two large pillows, with ruffled cases of the same material, make the affair complete, as shown in fig. 6, and a very com-

fortable lounge it is. If used as a bed, the bedding may be kept in one of the boxes, while the other will come in play as a stow-away-place for various articles. When the table is to be used, the lounge part is rolled away, and it is found very convenient to have this part separable into two, as the halves are more readily put out of the way than the whole would be. "None of these makeshifts for me," Mrs. Broadlands will say, "give me the real stuff, and solid, whether it is black walnut or mahogany. If I should put a visitor into a room with such a wash-stand as that, what would they think?"—We answer Mrs. B. that the difference in cost between makeshifts and the "real stuff" will buy all the books the family will need for a year; will send the oldest boy or girl to the academy, or may be used in many other ways. As to what visitors think; if we have any who do not think all the more of us for our economical ways, we hope they will not come again, but go where they can come in contact with more congenial furniture.

Household Notes and Queries.

VINEGAR.—The inquiries about vinegar come frequently; they generally ask how to make good vinegar in the family, but sometimes how to make vinegar from tomatoes, rhubarb, and the like. We do not know anything about these unusual kinds of vinegar, nor do we care to make their acquaintance. Vinegar can be made out of any liquid that contains alcohol, or sugar, or other matters that may be converted into alcohol, and there can be, at least so far as the ordinary manufacture is concerned, no vinegar without first producing alcohol. We think that good family vinegar can be made from but two substances, wine and cider. Wine being for the most part out of the question, cider is the only available material for *good* vinegar. We admit that just as strong, and just as wholesome vinegar may be made from sugar or molasses and water, but it will not have the peculiar refreshing fragrance of that made from cider. The cost of cider-vinegar is greater than that of its substitutes, but is of no consequence when the superiority of the article is concerned. It is not the mere acidity that we want, but the acidity qualified by an aroma, only to be found in that made from cider. Cider or any similar liquid to be converted into vinegar, needs a high temperature, at least 70 degrees, and free exposure to the air. If the temperature is lower, the operation will be slower. To start the vinegar, some ferment is needed, and for this some old vinegar, or the "mother" from an old barrel is useful. If one has an old vinegar cask with some vinegar left in it, the better way is to add cider to it gradually, a gallon or two at a time. To convert new cider into vinegar it is best to have two barrels, each half full, and draw each day a pailful from one and pour it slowly into the other, thus exposing it as much as possible to the air. Unless the proper temperature can be commanded, there is no way of hurrying the process.

CLEANING TRIPE.—Mrs. M. A. S., says that tripe is cleaned more easily with lime than by any other method. One quart of air-slaked lime is sufficient for a stomach; this is sprinkled very evenly over the stomach, and in about 15 minutes the coating will scrape off easily; she puts the tripe into warm water before scraping.

SENDING RECIPES.—Some seem to set a high value upon their recipes; we find on looking over our file that one person sends three very ordinary recipes, and wishes us to forward their value in money, and another encloses a single recipe of a few lines for which the paper for the year is asked. We always have on hand more recipes than we can ever expect to publish, and do not wish to purchase any. We are glad to say that the vast majority having received freely, are happy to give freely, and contribute to the general fund without any other recompense than what may come from the feeling that they have helped other housekeepers,

Fig. 1.—STUNNING FISH THROUGH THE ICE.

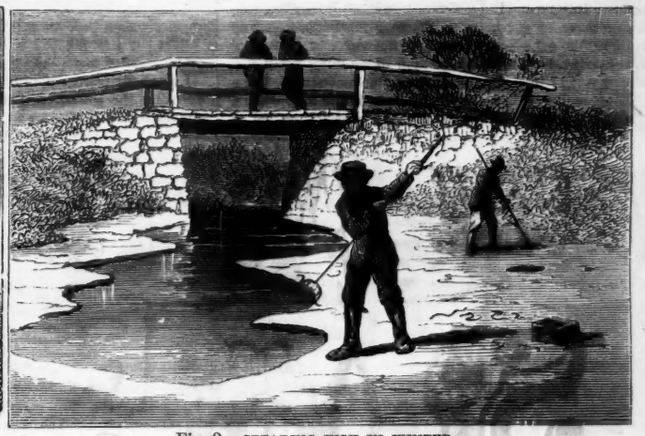


Fig. 2.—SPEARING FISH IN WINTER.

BOYS & GIRLS' COLUMNS.

Fishing in Winter.

Some people go a fishing for the sake of *fishing*, while others go for the sake of the fish. Some young men are never fishermen, but "anglers"; they make their appearance in remarkable rig from boots to cap, and their bag, rod, reel, and all other outfit cost as much as a good mowing machine; they will be out all a long summer's day, and be quite satisfied with one or two little trout; they do not go for fish, but for the fishing. Those who try fishing in winter are very likely to care more for fish than for sport, for while there is a certain excitement about it, there is also a good share of what is very much like work, with the addition of cold fingers and toes. In many parts of the country large quantities of fish are caught through the ice, both by those who send them to market, and those who catch them for family use. Some of these ways of fishing are practised by boys, especially the one to be named last. There is danger attending fishing through the ice, as there is in going upon the ice for skating, or any other purpose, and it would be much better for boys to go with older persons, or at least not undertake fishing in this way unless their parents feel that they are old enough to take proper care of themselves and avoid danger. One method sometimes practised, is stunning the fish, but this can not be done unless the ice is very clear and not too thick; for this the fisherman requires only an axe; he goes along cautiously, and when he sees a large pickerel or other fish near the surface—for they are fond of coming up to the sun-light—he gradually approaches it, until he can strike the ice a heavy blow directly over the fish. The force of the blow is communicated to the water, and the fish is stunned and motionless; a hole is then cut and the fish taken out. The work must be done quickly, or the fish may recover and get out of reach....Spearing is a very common way of taking fish through the ice, and in some cases requires much skill; a fish or other object in the water is not exactly where it appears to be; very likely some of you have seen in your school-books something about the refraction of light, and that the rays of light are bent in going from the air into the water, or from the water into the air; you know that an oar or straight pole put slantingly in the water looks as if it were bent; we can't

Fig. 3.—CATCHING SMALL FISH WITH NET.

Fig. 4.—TIP-UP OR TILT-UP FISHING.

stop to describe this now, but the light which enables you to see the fish is bent in coming out of the water, and if the spear were thrust at the fish just where it appears to be, you would miss it; those who spear have to learn by practice how to allow for this refraction. Eels are caught in large quantities by spearing through the ice; but it is not necessary to see these; indeed, they are quite hidden in the mud, where they stay in winter. The fishermen cut holes in the ice and thrust the spear down into the mud in different places, until they feel that they have an eel between the long elastic prongs, and they often get several at once in this way... In the third engraving is shown the method of catching small fish with a net; this is a moderately fine net attached to a hoop, and is let down through a hole in the ice; when a number of small fishes are directly over it, the net is

but the mud-cakes, while the children ran toward the house, little Bob White behind, and doing his best to keep up.

Payson West stood on the kitchen-stoop, with something in his arms; a small, black, fat, wriggling thing, a thing with blinking purple eyes, a white nose, and a short, convulsively wagging tail.

"Oh, the darling little thing."

"How old is he?"

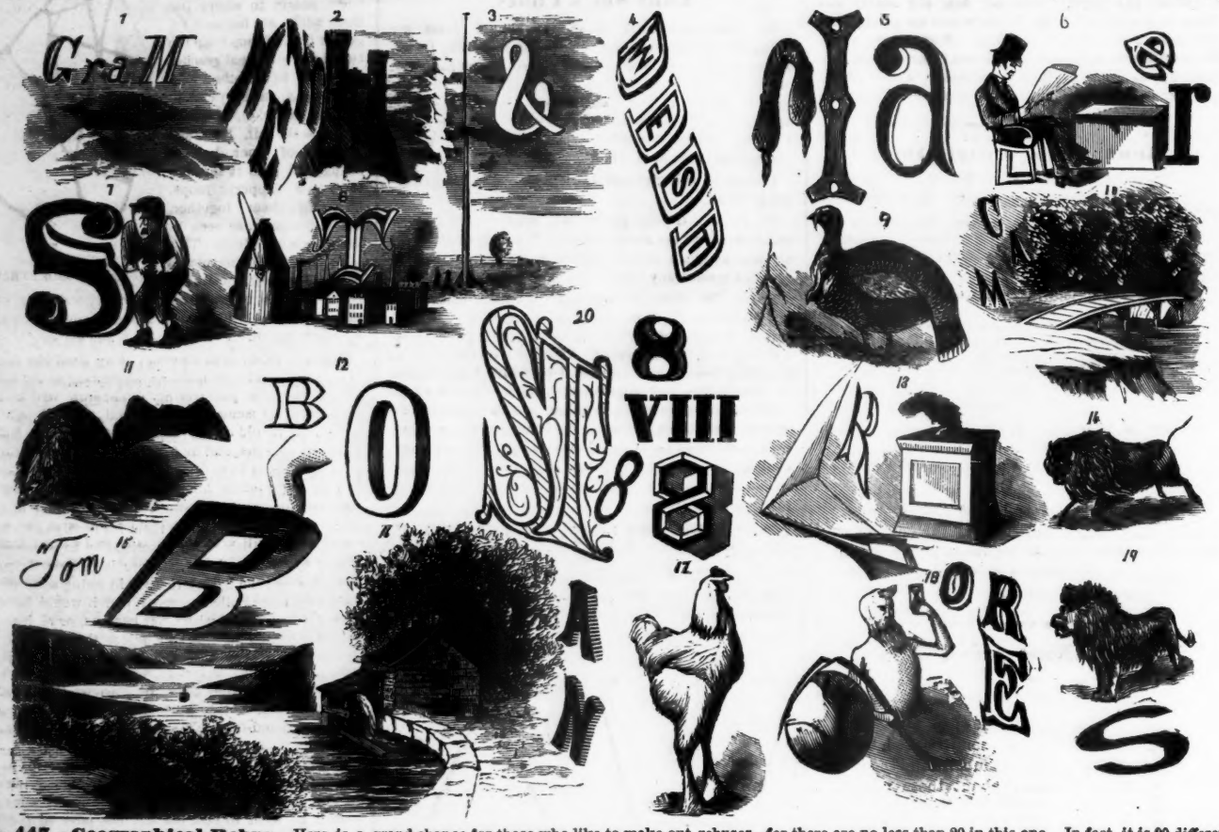
"Let me have him!" cried the children, throwing themselves on their elder brother in a body.

"No! no! he mustn't be handled, it spoils him. Keep off now—all of you—and I'll put him down," said Payson.

Everybody retreated a little, as Payson set the puppy down on the gravelled road. Puppy was fat, very fat, and his legs were short, and not very steady. So, after a

milk, and was old enough to know the meaning of *fun*. Such chasing and hiding as there was in the garden, such barking and screaming, laughing and growling! And oh! such mysterious holes in the backs of little boys' stockings, and torn places in little girls' skirts, as Mrs. West found. General's teeth were small, but they were sharp, and he had yet to learn that they were only to be used on rats, and bones, and robbers.

About this time three dear little kittens arrived at Maple Hill. Janie named them—the light gray one Friskus Stumps, the black and white one Nelly Briggs, and the small, dark gray one Annie Payson. General was on very good terms with Friskus and Nelly, but Annie Payson was his bosom friend. They ate together, slept together, and almost talked together. When the cook gave them a dish of food, General waited most po-



No. 447.—Geographical Rebus.—Here is a grand chance for those who like to make out rebuses—for there are no less than 20 in this one. In fact, it is 20 different rebuses, and if you look sharp, you will find the names of that number of countries, states, cities, and other geographical localities.

lifted; these small fry are caught to use as bait for the next...."Tip-up," or "tilt-up" fishing, as it is called in different places, has more sport about it than either of the others, and one person can attend to several lines. The tip-ups have to be got ready first; they are made of thin board, about two inches wide and 20 inches long, with a hole bored two or three inches from one end; to the short end, or that nearest the hole, a line is fastened of the proper length for the depth of the water, or kind of fish, and at the other end of the line is one or several baited hooks. Holes are cut in the ice, and a stick long enough to reach across there is put through the hole in each tip-up; the line is dropped into the water, the stick resting across the hole. When a fish takes the bait, the long end of the tip-up will be tilted up, and the fisherman knows that he must attend to that line; when there are several tip-ups, and the fish bite freely, it makes pretty lively work if one has many to look out for.

The Story of "General."

It was a warm day in May, and the West children were all making mud-cakes in the old quarry back of the house, with shingles for bread-boards, and blacking-box covers for "cutters." There were Alice and Janie, Frank and Joe, and little Bob White, their cousin. What works of art were achieved, and how dirty certain little hands grew in the process, nobody knew but themselves and the wash-basin. The first batch of cakes had been laid on the rocks to dry, and the children were all standing around to admire, when Horace White came rushing up the hill, waving his hat, and calling at the top of his voice: "The dog's come! the dog's come!"

In less than a minute the quarry was deserted by all

few tottering steps, he sat down suddenly, sniffed at the road, and then raised his head, and gave a pitiful little howl, which said, as plainly as Bob himself could have said it, "I want my mother!"

"He's hungry," said Alice, "let's get him some milk."

At which the children all rushed into the kitchen. Now I never before knew that a pint of milk was too heavy for one person to carry, yet this particular pint-bowlful required the united efforts of four boys and two girls, to bear it to the object of their care. In truth, not all of that milk reached Mr. Pup, for some of it was afterward found by the cook ornamenting the kitchen floor, and some more of it might have been seen giving a variety in color to the trousers of certain small boys. Puppy, if he knew nothing else, evidently knew how to drink milk, and the children watched his successful efforts with delight.

"He's a cross between a Newfoundland and a Shepherd dog," remarked Payson, "that's what makes his hair so curly, being part Shepherd. But you can't play with him, until he is older, it will spoil him. I'm going to keep him in the little room over the carriage-house." When the small dog had finished his meal, Payson took him up, and walked toward the carriage-house, followed by the procession, Bob, as usual, bringing up the rear.

"What's his name going to be?" asked Alice.

"Lieutenant-General Ulysses S. Grant!" said Payson, who was very patriotic.

"But that will be so long!" exclaimed Horace.

"We'll call him General for short," was the answer. So General was Puppy's name from that time.

For two or three months General was kept in strict seclusion, but toward the last of July, Payson began to allow him more liberty. By this time he was almost treble the size he was when he drank the first bowl of

litely, until Annie had made her selection, and took what remained himself. Mrs. West told the children, they might learn a lesson in kindness even from a dog.

Wherever the children went, there followed little Annie and big General, for General, though still a puppy, was little no longer. Often, on hot, sultry days, the whole party emigrated to the "backwoods" on the east side of the farm. There it was always cool and fresh, there were strange rocks and countless trees, and a wild swamp, in which were snakes, lizards, and turtles, where even Horace did not care to go alone. Horace and Frank tramped about, looking for sapling hickories for canes, and sassafras to put away to season for bows. Alice discovered beautiful ferns and mosses. Janie and Joe found new rocks and caves, while Bob got in every one's way, and always thought a bear was coming.

As for General and Annie, I do believe they had the best time of all, for they had no clothes to tear, no shoes to cut, nobody to scold if they came home late. General was never quiet, he raced from one place to another, always finding some new excitement. He thought there was a woodchuck under every rock, a squirrel up every tall tree, and he got so hot and tired digging and scratching at mysterious holes, that he was forced to lie down in the brook to cool himself.

On rainy days the children resorted to the great barn, a perfect paradise for dogs and children. On either side of its great floor were the mows, piled high with hay, and over them the straw-loft, mainly occupied by pigeons, and visited at times by daring boys, at the risk of a dangerous tumble. General was capital at playing "I spy." No corner was deep enough and dark enough to hide the occupant from his keen eyes, no boy so covered with hay, but that General could dig down to him in a minute—he went from one hiding-place to another, until all

were discovered, and then stood panting, breathless, triumphant, with his hair full of hay-seed, and his head covered with cob-webs.

But days of frolic have an end, and friends, however dear, can not stay together forever. In the fall Mr. and Mrs. West moved to the city for the winter, and General and Annie were left behind in charge of Horace and Bob White, who lived near by. After his cousins had gone, Horace went to find and take home their pets. General came bounding at his call, but Annie was nowhere to be seen. After a long and vain search Horace was forced to go home without her. For several days he looked for the little cat without avail. General, too, only came to his new home at meal-times. At last Horace resolved to follow the dog one day, as he was making off after eating his dinner; so he went after him, up to Maple Hill, past the house, to a deserted tool-shop near the quarry, and there, on a work-bench, sat Annie, whom her good friend would not desert in her loneliness. Horace took Annie home with him, and together she and General lived contentedly, until they joyfully welcomed back their young playmates, when they returned to the country in spring.

Aunt Sue's Puzzle-Box.

DOUBLE ACROSTIC.

The initials form a county in Tennessee, and the finals name a river in Russia.

1. A county in Vermont. 2. A county in California. 3. A county in Ohio. 4. A county in New York. 5. A county in Michigan. 6. A county in Mississippi.

WILLY BURT.

CHARADE.

Without my first this beauteous earth
Would be a desert wild;
And kings their empty honors scan
When from them 'tis beguiled.

My second is an ornament,
By men and women worn,
A weapon or a harmless toy,
Perhaps you've seen it drawn.

A pleasing sight I think you'll own
My whole it is to see;
The emblem of a promise rare,
Through ages yet to be. GILES FARMIN.

CONCEALED VEGETABLES.

1. Father, is Tom at Ophelia's? 2. Yes, he has gone to take her a dish of apples. 3. I want you to leave this flower-pot at Osgood's. 4. Let that be, and hurry off. 5. Here, Amos, pin a check on this parcel. 6. We had better go on, I only have an hour to walk. B. A.

RHYMING ANSWERS.

See what a glittering show,
List to my musical flow,
In our inmost hearts often they glow,
Sharp as a skin-piercing thorn,
Where the whale floathed I'm borne,
Holding my treasure of corn,
Ah! it is tender, my boys,
Hark to the horrible noise,
Virtue and peace it destroys. T. AYLOR.

CROSS WORD.

My first is in rafter but not in beam,
My next is in slumber but not in dream,
My third is in elbow but not in arm,
My fourth is in terror but not in alarm,
My fifth is in wisdom but not in sense,
My sixth is in dollars but not in pence,
My seventh is in dahlia but not in a rose,
My whole is a place where the orange grows.

TRANSPOSITION.

When bruised I represent the weak
In whom we little comfort seek,
Transposed, a creature much more fleet
Than many others that we meet. HENRY.

NUMERICAL ENIGMA.

I am composed of 13 letters:
My 1, 2, 7, 4, 5, is a part of the body.
My 9, 3, 8, is a boy's nickname.
My 10, 13, 12, is a way of sewing.
My 11, 6, is an exclamation.
My whole was a messenger, cheery and bright,
Whose coming we once hailed with joy and delight.
ROSE-BUD.

PI.

Hatt ruetan viges ehr hidandma, tar,
Het shemet fo tewes croudingeis;
Het rednet sidly fo het earth
Ni veery guntoe sherearing. TOM.

ANSWERS TO PUZZLES IN THE NOVEMBER NUMBER.

NUMERICAL ENIGMA.—James Fisk, Jr.

CROSS WORD.—Jackdaw.

DECAPITATION.—Trice, rice, ice.

ANAGRAMS.—1. Lamartine. 2. Martin Luther. 3. Schiller. 4. La Fontaine.

PUZZLE.—Commence in the center and read around "Jack of all trades and master of none."

DOUBLE ACROSTIC.—P— u —P
O— chr —A
P—owderhor—N
P— atho —S
Y— earl —Y

EQUIVOCAL WORDS.—1. Beetle. 2. Bill. 3. Bit. 4. Blade. 5. Blow. 6. Air.

DROP-LETTER PUZZLE.—Time and tide wait for no man.

SQUARE WORD.—P A S T
A C H E
S H U N
T E N T

TRANSPOSITIONS.—1. Meat, tame, mate, team. 2. Dame, made, mead. 3. Fête, feet. 4. Mope, poem. 5. Dear, dare, read.

HIDDEN SOUTHERN CITIES.—1. Raleigh. 2. St. Antonio. 3. Tallahassee. 4. Pensacola. 5. Jackson. 6. Austin.

PI.—We share our mutual woes,
Our mutual burdens bear
And often for each other flows
The sympathizing tear.

DIAMOND PUZZLE.—
A
TUB
HAGUE
AUGUSTA
BUSTS
ATE
A

Thanks for letters, puzzles, etc., to Carl, Ben, A. D. E., F. W. W., Snip, Gussie S., Addie, Geo. W. T., G. Mason, Kitty, and Isola.

Send communications intended for Aunt Sue, to Box 111, *P. O., Brooklyn, N. Y.*, and *not* to 245 Broadway.

Aunt Sue's Chats.

TO CORRESPONDENTS.—Lest any should deem me guilty of discourtesy in not answering inquiries, I wish to explain that six weeks must elapse, under the most favorable circumstances, before my reply could be published. And if then, for any reason, the notice cannot appear in print, another month must elapse. So when you say "please answer in the next number"—please understand it is not possible.

LINNIE.—I will give you the "instructions for *spatter-work*" soon.

W. H. W.—If your puzzle was sent simply for our amusement, we are much obliged. If for publication, we are just as much obliged, although we do not want to give our readers any but original puzzles.

EFFIE.—No, dear, "rosewood" does not come from any "rose-tree." I think the chief reason for calling it rosewood is, because when the wood is first cut it emits a strong, rose-like fragrance. There are several kinds of rosewood trees, which are found in South America and the East Indies, and neighboring islands. The trees are sometimes so large that planks ten feet long by four feet in width may be cut from them. The wood is so valuable that in some of the forests where it once grew abundantly, scarcely a specimen of it is left. The Madras Government has the good sense to keep setting out plantations of it.

A young gentleman, writing to me from Aultsville, Ont., says:—"Dear Aunt Sue—Would you be kind enough to explain in your 'Chats' how to make a kite. I built one, and I could not get it to fly at all; so I concluded to ask you. It would rise all right, and then turn

Fig. 1. MAKING A KITE.

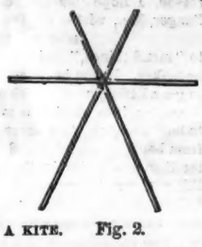
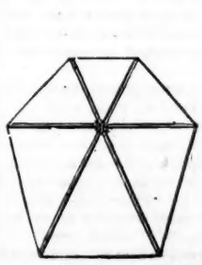


Fig. 2.

over and fall on its head. I tried several times to fix it, but could not make it fly. So if you will answer this, you would do me a great favor. Yours truly J. H. C."

I like this boy's evidence of faith in his Auntie; it isn't every lad who would think that a woman knew anything about kites; but I happen to have made kites, and have been out with the children to fly them; and mine would "turn over and fall on their heads," until experience taught me how to remedy such eccentricities. The great principles of kite-making are, first, lightness; second, well-balancing; and third, the proper angle of ascension. If the strings were properly adjusted to which you attached the ball of twine, then the trouble was probably



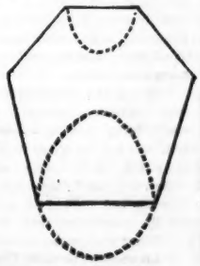


Fig. 3. KITE FINISHED. Fig. 4.

in the tail; perhaps it was not heavy enough; or if heavy enough, it might have been too short. You do not say what shape you made your kite; was it the old-fashioned pear-shape? The most satisfactory kite to fly, in my opinion, is one the shape of fig. 1. I never have any difficulty with one of that kind. I don't suppose I need describe their plan of construction, but perhaps it may help some of the boys who are not posted. Take two sticks of light wood, say ten inches long, and one seven or eight inches, and fasten them together, as in fig. 2, by winding strong thread around them where they come in contact. Now pass strong thread or fine twine around the ends of the sticks, as in fig. 3. Fasten the ends tightly. When this frame is completed, lay it on a thin, but strong paper (paper-*muslin* is the best) and cut the paper the shape of the frame, allowing about half an inch all round to paste over the twine, (if you can't get paste, you might baste it round with needle and thread). Now you have your kite made as far as fig. 1, and the important operation of fastening on the strings commences. I make a loop, from the top of the two upper sticks, that hangs down nearly to where the three sticks are fastened together; and a loop from the two lower ends that reaches nearly up to the other loop (as in fig. 4); also a pendent loop (as in fig. 4), on which to fasten the tail. Now take the end of your ball of string, and pass it through the two (upper) loops, fastening them together, but not closely, as seen in the side view, fig. 5. This plan gives the string plenty of play, which is desirable.

Fig. 5.—THE STRING.

Now fasten on to the pendent loop a good long, narrow tail, and if your kite is light enough, I do not think you will have any difficulty in raising it and keeping it steady.

We have received another cat story from our friend in Wisconsin. It is not quite so interesting as the last, but as it shows how persevering good-nature will at length overcome moroseness, even in a cat, we will publish it.

We have an old cat by the name of Nig; he has long been our only pet, and he feels his rights to be many, and does not like to have them infringed on. Baby likes Nig and longs to fondle him, but Nig does not like to have baby rub his hair the wrong way and poke her fingers in his eyes, or tug him around under one arm; so we procured a little kitten to please baby, and named him Ned. Ned is a lively little fellow, and he no sooner saw Nig than he proposed a frolic, but sober old Nig declined the offer with great dignity. Ned was not to be discouraged, so at every opportunity he was busy plaguing Nig, jumping on his back, putting both paws around his neck and biting him, playing with his tail, and cutting up many other pranks, until at last he wore his way through Nig's dignity, and now they have the greatest of frolics. Nig is very careful not to hurt Ned. One evening, during their rough-and-tumble hour, Ned hid under a chair, and prepared to spring out upon Nig, Nig very leisurely walked up to Ned, cuffed him on the side of his head, as much as to say, "No more nonsense to-night," then went off and lay down. Ned played by himself for a long time before he went to bed, but did not offer to touch Nig again. I thought that was good government, and an obedient kitten. It would be pleasant if all children would obey their parents as promptly. I would add that Nig has got so he will sometimes bring game to Ned.

The Doctor's Talks—About Various Matters.

Here is quite a lot of letters from my youngsters far and near, and to answer them I must say a little about various things.—When I say "youngsters," of course I mean girls as well as boys, for I should be sorry to have the girls think they were not included.—We will begin with a girl's letter—little Minnie D. S., who lives in Missouri; she is only 11 years old, and has already learned to use her eyes better than some older persons do. Minnie one day went to the creek with her father, and seeing something on a bush that looked like an eatable berry, she picked it, and finding that she had never seen anything of the kind before, she took it to her father, who said it looked like "Waahoo," but was not sure. Minnie evidently is a girl who wishes to be sure, so she very sensibly sends a specimen to the old Doctor,

ASKING "WHAT IS IT?"

and wants an answer in the *American Agriculturist*.—Your father was right, Minnie, the fruit sent is that of the bush known in the western states as *Waahoo*, but in the east, for it grows all the way from New York to Missouri, and from there on to Oregon, it is known as Burning-bush and Spindle-tree. You may think I made a mistake in calling this a fruit, but that is just what I intended to say; we sometimes use the word fruit—to mean an eatable product; but in describing plants, whatever follows after the flower, and contains the seeds, is properly the fruit, no matter whether it is hard and dry, or juicy and eatable. This fruit sent by Minnie, when first

ripe, is not round, but has 3 to 5 ridges, or scollops on the sides, and is of a fine crimson color; soon it breaks open through these ridges, and shows a seed in each, and these seeds have a bright scarlet coating; so the scarlet and crimson together make the fruit very showy. The climbing vine called Wax-work, or Climbing Bitter-sweet, is a near relative of this, and has round pods, which show two colors when they break open. So Waahoo and Burning-bush are the best known common names, and if you would like to know what botanists call it—it is *Euonymus atropurpureus*. Generally a good reason can be given for these botanical names, but *Euonymus* is not easy to explain; *atropurpureus*, means blackish purple, and if you look next spring when the shrub is in flower, you will see why that name was given, for the little flowers are very dark colored. Let me tell Minnie something else about the Waahoo. If there is room in the front yard for any more shrubs, have a young plant or more of this dug up and set out; it will make a handsomely shaped shrub, and when it gets a good size, and the leaves drop in the fall, leaving a great quantity of fruit, you will understand why some one called it "Burning Bush."....Here are two boys who are

NOT TO BE HUMBUGGED,

if they do live in an out of the way part of Florida, where the mail at best comes but once a week, and sometimes forgets to come altogether. These two boys, Ernest and Porter, write me just the neatest letter I have seen in many a day; they enclose a circular of the "Brazilian Perfume Stone," with a picture of the wonderful "Perfumed Cave." They have never before heard of a "Perfumed Cave," and ask if it has any existence, and then very shrewdly guess at the whole matter, by asking if any boy or girl could not saturate a piece of pumice-stone with some perfume, and make as good a "Perfume Stone" as any that comes from Brazil.—Boys, you have hit it exactly. Were there such a cave as this is described to be, it would be generally known as one of the wonderful natural curiosities, and we should not first hear of it from a peddling concern in an obscure New England town. There are stones which have odors, especially when rubbed, or struck with a hammer, but I never knew of one that could be called "perfumed," though there is one which deserves its name of "stink-stone." You may be very sure that this "Perfume Stone" is a piece of sand-stone, pumice-stone, or other porous kind to which the perfume has been added. Set that down as a humbug. Ernest and Porter not only ask questions, but they tell something of interest about

PARROQUETS AND COCKLE-BURS.

The Carolina Parrot, or Parroquet, is a very handsome bird with green, yellow, red, and blue, in its plumage: many years ago it was found as far north as New York, but has become less and less abundant in the southern states, until Florida is the only one in which they are found in large numbers. These boys now and then catch and tame the parroquets, and at first have a lively time with them, but they soon become gentle: the favorite food of these birds is the cockle-bur, or clot-bur, which probably every farmer's boy in the country knows, if he does not have any name for it; its fruit or seed-pod is from one-half to an inch long, and covered all over the outside with hooked prickles; it is that troublesome thing so apt to get into the wool of sheep, and the tails of horses and cows, and so difficult to get out. These burs contain two large seeds, and the boys think the way in which the parroquets get them out is something wonderful to see, and say that until they saw the birds come in great flocks to feed upon them, they had no idea what cockle-burs were good for....From these Florida boys, we turn to the next letter, which is from Long Island, in which Jessie F. C. asks why New York is called

THE EMPIRE STATE.

It is difficult to know how or why the nick-names of the different states were given, as some have not the least appropriateness: thus Michigan is called the Wolverine state, but I have been told by persons who have lived long in the wild parts of the state, that they never saw a wolverine, and that the animal is an exceedingly rare one. As to the Empire state, that may have been assumed boastingly by persons who thought that

"POOR PUSS."—NOW SHE HAS CORNERED HIM.

New York possessed great political control, on account of its large vote in the election for President; or it may have been so called because it formerly was the only state bordering on the Atlantic, which, by its canals, railroads, and lakes, could control the trade of the great west. If any of you can give our friend Jessie a better reason, I hope you will do so....Charles R. H., near Bangor, Me., wishes the Doctor to tell him

HOW TO MAKE GLUE,

to "mend things," and to put together the fancy articles he makes. If you have much glueing to do, it may pay to get a little glue pot, which is an outer iron pot holding water, into which sets an inner pot of tin or copper to hold the glue; this arrangement is to keep the glue from being over-heated and burned, as it can get no hotter than the water in the outer pot. You can imitate this with two tin cups, or by having any convenient dish to hold the glue, and placing this in a sauce-pan holding some water, with some nails or pebbles in it to prevent the thing which contains the glue from resting directly

"POOR PUSS."—PATIENTLY WAITING.

on the bottom of the other. Two empty tin-cans, such as are used for fruit, tomatoes, condensed milk, and the like, of unequal sizes, will make a handy glue-pot. You can buy glue at the hardware or drug stores; do not get white glue; the brown which looks clear and bright and has no bad smell, is likely to be good. To prepare the glue wrap a cake or sheet in strong brown paper, and lay it on a hard surface, and strike it one or more sharp blows with a hammer; the paper is to keep the pieces from flying; put as much as you think you will need into your cup, put on enough cold water to cover it, and let it stand in a cool place (not freezing) for several hours; it will swell up, and when the pieces can be readily bent, pour off and drain off every drop of water, and set the cup containing the soaked glue into the vessel containing cold water, and place on the stove to heat gradually; when thoroughly melted and hot, the glue is ready for use, and is to be applied with a brush. Recollect, the nicer and more closely fitting the joints, and the less the quantity of glue used, the stronger the work will be. It is well to warm the work before putting on the glue, then apply it and bring the parts together quickly; the manner of holding the work until the glue hardens, must be thought of before-hand, for it must be kept in place for several hours; the cabinet makers use clamps or hand-vises of various kinds, and if you have nothing like these, you must contrive by wedges, straps, strings, or other substitutes, to hold the work firmly....The rest of the letters must remain for the present....I hope to hear from the boys and girls more frequently this year than ever before, not only those who have long been our readers, but the many new ones who will begin the year with us. To all, both old and new,

A BIT OF ADVICE.

Don't apologize or make any excuse for writing—understand once for all, that I am glad to have you write; it takes up a great deal of my time to read these excuses, and it costs you the time to write them. So recollect, you are always welcome, and no apologies needed. If you do not find that your letter is answered, never mind, and be sure there is some good reason for it; don't take offence, but write again when you have need to do so; I can not write to each one and explain the matter.—Always send your name: you can sign what you please, but I must have the name also.—Several have forgotten this.—Don't send puzzles for me to answer. Here is one about a man starting from New York on Monday, traveling west as fast as the sun, (!), and some one wants to know where he would be when it was Tuesday. I do not know, nor do I think it of the least interest; the knowledge of where that impossible traveler would be, will not make any one a bit wiser or better, and I have no time to spend on such things. Send puzzles to Aunt Sue, and she will, if she sees fit, give them in her "Puzzle Box." But please do not send them to THE DOCTOR.

POOR PUSS.

Here is a pict-ure sto-ry that all lit-tle boys and girls will like and laugh at. Puss was chas-ing a mouse, and she had al-most caught it; but there was an old boot on the floor, and the mouse ran in-to the leg of it. Puss went in af-ter the mouse, but she was big, and the leg of the boot was small, so she could not get far in-to the boot. What could puss do but sit down by the boot, and wait for the mouse to come out? In the low-er pict-ure you see her sit-ting very qui-et-ly, for she is sure that by-and-by the mouse must get tired of stay-ing in the boot, and will come out, when she can catch it. She does not look as if she were watch-ing very sharp, but you can see by her ears that she listens for the least sound, and is all ready to spring when the mouse comes. Poor Puss! she waits in vain; she will not soon see that mouse again; she does not know, as you do, that the boot was a worn-out one, and that there was a hole in the sole through which the mouse went out. May be the mouse is some where laughing at the cat. At any rate, we will laugh at her, for is it not a fun-ny story?

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Barre, Vt., Sept. 20, 1875. M. V. BAILEY.

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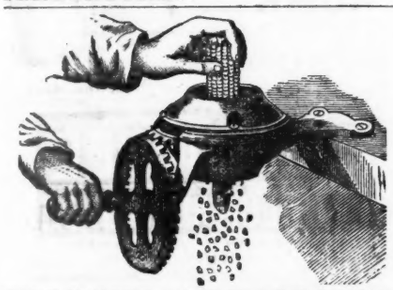

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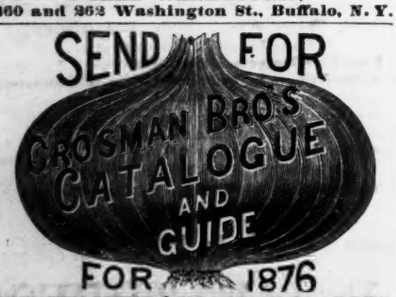

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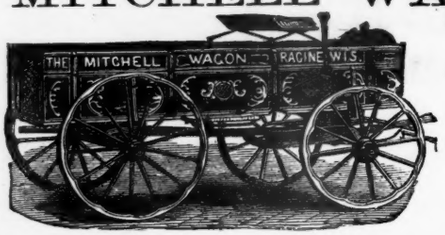

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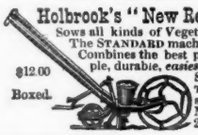

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5	*Improved Table Croquet (do. do.)*	$ 3 00	8	30
6	*Child's Carriage (C. W. F. Dare)*	$20 00	30	102
7	*Child's Self-operating Swing (do. do.)*	$ 4 00	9	32
8	*Doll's Cottage Chamber Set (do. do.)*	$ 5 00	12	37
9	*Crandall's Building Blocks*	$ 2 00	5	20
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11	*Crandall's* **Acrobats**	$ 1 00	3	....
12	*Crandall's* **Menagerie**	$ 2 00	5	20
13	*Utility Adj. Table (Lambie & Sargent)*	$ 8 00	16	52
14	*Pocket Tool Holder (Miller's Falls Co.)*	$ 1 00	3	....
15	*Bracket Saw (do. do.)*	$ 1 25	4	....
16	*Payson's Indelible Ink—Pen, etc.*	75	3	....
17	*"Peoples' Pump" (W. S. Blunt)*	$12 00	19	65
18	*Tea Set (Lucius Hart Man'fact'g Co.)*	$50 00	66	225
19	*Ice Pitcher (do. do. do.)*	$16 00	24	80
20	*Casters (do. do. do.)*	$ 9 00	17	54
21	*Cake Basket (do. do. do.)*	$12 00	19	65
22	*Revolving Butter Cooler (do. do.)*	$ 8 00	16	52
23	*One Dozen Teaspoons (do. do.)*	$ 6 00	15	45
24	*One Dozen Tablespoons (do. do.)*	$12 00	19	65
25	*One Dozen Table Forks (do. do.)*	$12 00	19	65
26	*Child's Cup (do. do.)*	$ 2 75	7	27
27	*Child's Knife, Fork & Spoon (do.)*	$ 5 00	12	37
28	*Moore's Floral Set (Moore Man'f'g Co)*	$ 1 00	3	....
29	*Excelsior Pocket Microscope (Vulcanite Optical Instrument Co.)*	$ 2 75	7	27
30	*Abbott Pocket Microscope (L. G. Abbott)*	$ 1 50	4	....
31	*Four "Pocket Soap-Bubble Toy" (Bliss)*	$ 1 00	3	....
32	*Turn-table Apple Parer (D.H. Goodell)*	$ 1 00	3	....
33	*Climax Apple Corer & Slicer (do.)*	$ 1 00	3	....
34	*Family Cherry Stoner (do.)*	$ 1 00	3	....
35	*Knives and Forks (Patterson Bros.)*	$14 25	21	70
36	*Knives and Forks (do. do.)*	$18 00	27	92
37	*Carver and Fork (do. do.)*	$ 4 00	10	34
38	*French Cook's Knife, Fork, and Steel*	$ 4 00	10	34
39	*Pocket Knife (Meriden Cutlery Co.)*	$ 1 60	4	....
40	*Pocket Knife (do. do.)*	$ 2 00	6	22
41	*Pocket Knife (do. do.)*	$ 2 75	7	27
42	*Ladies' Pocket Knife (do. do.)*	$ 2 00	6	22
43	*Multum in Parvo Knife (do. do.)*	$ 3 50	8	30
44	*Garden Seeds & Flower Bulbs (select'n)*	$ 2 00	6	22
45	*Sewing Machine (Remington)*	$70 00	80	288
46	*Beckwith Portable Family Sew'g Mach*	$30 00	30	100
47	*Lamb's Family Knitting Machine*	$55 00	68	220
48	*Washing Machine (Doty's)*	$14 00	21	70
49	*Clothes Wringer (Best—Universal)*	$ 8 00	16	52
50	*"Always Handy" Stove Shelves (American M'f'g Co.)*	$ 3 00	8	30
51	*Pat. Magic Bellhead Pencil (Ludden & Taylor)*	$ 1 50	4	....
52	*Ladies' Magic Charm Pencil (do. do.)*	$ 2 00	5	20
53	*Gents' Magic Charm Pencil (do. do.)*	$ 3 00	8	30
54	*Gold Pen, Telescopic Case (do. do.)*	$ 2 50	7	27
55	*Gold Pen and Pencil, Telescopic Case, Elegant (do. do.)*	$ 5 50	13	37
56	*Melodeon, 4-oct'e (G. A. Prince & Co.'s)*	$90 00	105	320
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60	*Creedmoor Long Range Rifle (E. Remington & Sons)*	$100 00	110	380
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83	*Any Six do. do. do.*	$15 00	24	82
84	*Any Seven do. do. do.*	$17 50	27	92
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	(Each ad'l volume at same rate)		....	....
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containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from p. 7.

Grinding Bones.—"M. T. H.," Fremont, Ohio. Bones can not be ground in a tanner's bark-mill; a mill grinding them needs to be made much stronger, and of different construction, on account of the excessive hardness and toughness of some of the bones. When well burned, bones may be crushed in a bark-mill, and ground fine upon a "country" stone, or a burr stone, in a grist or plaster mill. In burning bones, the most actively fertilizing matter, the gelatine which produces ammonia in its decomposition, is lost, and the phosphate of lime, with a small quantity of carbonate only, is left.

Feeding Cattle and Horses Together.—"H. E. F." There is no reason, so far as health of the animals is concerned, why horses and cattle should not be kept in the same stable, and upon the same floor. For convenience and safety there should be separate entrances for the horses and the cattle, and the stalls should be separated by partitions.

Gathering Ice.—"W. H. M.," Springfield, Mass. Ice should be cut and stored as soon as it is thick enough. Eight inches is a good thickness for it, a foot is better. The tools required are a cross-cut saw with one handle removed, and an ax to cut the first holes. The blocks should be cut of equal size. 20 pounds a day is a good allowance for a family, which for 200 days would amount to two tons. But a considerable allowance must be made for waste. About 10 loads will be required for a small ice-house.

Rich Jersey Milk.—"C.," Petersburg, Va., states that he procured a pound and a quarter of butter from 6 quarts of milk, from a Jersey cow exhibited at the agricultural fair of Washington county, (Va.), in October last. The milk was set for three days before it was churned.

Profit in Poultry.—"L. N. S.," Colfax, Washington Terr., sends the following extract from his account book, of the cost and proceeds from 55 hens and five turkeys, during a season of nine months, kept when he was a resident of Litchfield Co., Conn. The hens and chickens consumed altogether over 200 bushels of corn and meal. The cost of hens and their food was $252.33. The proceeds from eggs, etc., were as follows, 298¼ dozen eggs, $81.66; 2053½ lbs. of poultry, $214.32; 383½ lbs. turkeys, $61.07; manure sold, $6.84, total, $463.39; leaving a profit of $211.04.

Blooded Stock.—"C." Petersburg, Va. The term "blooded stock," is used to designate pure blooded stock, or animals of pure lineage, belonging to an established breed. It is used "for short." It does not necessarily apply to imported stock, yet all the so-called "blooded stock" we possess, has descended from imported animals.

Foul Sheath.—"T. H.," Fond du Lac, Wis. Foul sheath in a horse, may generally be remedied by washing with soap and water. If this is not effective, a solution of cloride of zinc, (four grains in an ounce of water), should be used. Carbolic acid may be substituted for the cloride of zinc. Half an ounce of sulphur may be given to the horse daily for a few days, in the feed. The parts should be thoroughly cleansed, and returned while wet with the solution. It may be necessary to use a syringe, and inject the solution, to reach the inner portions of the sheath.

A Crop of Mangels.—"L. P. G.," Nazareth, Pa. A pile of mangels 8 feet long, 3 feet wide, and 2½ high, would contain about 40 bushels. If these were grown upon a patch of ground 43 feet long, by 30 wide, it would be equal to nearly 1,400 bushels, or 42 tons per acre. This would be as large a crop as is generally raised, and more than an average one.

From North Carolina.—"T. B. W.," Macon Co., N. C., who has recently settled in this part of North Carolina, sends his impressions about the locality. He writes that the climate is very agreeable, the water of the best, and the scenery lovely. The fruit is excellent, there are no caterpillars or codling moths. The country is well adapted to stock. Beeves that have been running at large during the summer, are driven off for sale fat in

October. Beef is 4½ cents per pound for hind-quarters. The farming of the natives is of the poorest description. Stock are allowed to run in the woods all the winter, and when snow falls, some trees are cut down, upon which the cows browse, eating the twigs and small branches. The principal crops are potatoes, corn, and buckwheat, of which enough to eat is gathered, and the rest is left for the hogs and cows. No hay is cut, although grass is plentiful. Land is very cheap, and the soil so excellent, that a few good northern farmers would soon give the locality a high reputation.

Value of "Shucks."—"C." Corn-shucks, or husks, are not of much value for feed. "Not worth shucks" is a common adage expressive of the popular estimate of their worthlessness. Nevertheless, cattle turned upon corn-stubbles, will pick up all the husks with no little eagerness.

To Reduce a Sow's Condition.—"D. S. G.," Linn Co., Kansas. Nothing more is necessary to reduce a sow that is too fat, into good breeding condition, than to turn her into a field where she may pick her living, and withhold corn from her; or feed only an ear or two daily. A sow must be very fat to fail to breed.

A Manure Cart.—"R. A. J.," Troy Center, Wis. Under favorable circumstances it would certainly pay to spread liquid manure over some crops. The crops to be thus grown, should necessarily be more valuable ones, and those of low growth. Meadows after having been mowed, might be fertilized with liquid manure more easily and evenly than to top-dress them with solid manure, and if there were facilities for saving all the liquids of the stable and yards, and diluting them with water, they might be spread upon grass, young corn, or root crops, with profit. The cost of spreading is generally about 25 cents an acre. Ten acres a day can be watered with a cart having an 8-feet spreader, if the distance is not too great from the cistern.

Crooked Geography.—The Revue Horticole says that the *Agave Consideranti*, about the proper name of which there is some discussion, "is indigenous to the cold parts of New Mexico, (of Texas), where it is found * * * between Monterey and Saltillo." This locality is not within a thousand miles of the nearest point of New Mexico, and some 200 miles from any part of Texas, being in Mexico proper.

A Highly Honored Tree.—We get as much amusement in reading the advertisements in the English horticultural journals, as we do instruction from their editorial pages. One nurseryman, who has a new variegated evergreen, instead of telling us of its peculiar merits, gives the prices of specimens, and says, in conspicuous type, "They have been planted by the following Royal and Noble Hands." This is followed by a list, not of "hands," but of persons supposed to own those useful members, comprising 50 or more names, beginning with H.R.H., the Prince of Wales, and nicely graded down to common "Sirs." It is very likely that this advertiser knows that such stuff will pay—but it looks very funny to us.

Pekin Ducks.—The rapidity with which these ducks have become popular, is something remarkable. Their quiet disposition, rapid growth, and large size, are much in their favor; besides this they are very ornamental, as may be seen by those who visit Central Park, New York, where there are some fine specimens, contributed by Mr. James E. Sisson, of Westerly, R. I.

Notice to "The Garden," (London).—This journal, in quoting an item about that best of squashes, the "Butman," speaks of it as a "Squash Gourd." No, Sir, our squashes are *not* gourds any more than our blackberries are "brambles," our sweet potatoes "Yams," (as you had it the other day), or Sequoias "Wellingtonias," and if you don't stop calling things "out of their names," and cease speaking of the squash as a "gourd," we shall feel obliged to call the attention of President Grant to the matter. Recollect that we are near the Centennial birthday—and there are some things we just won't stand. British Garden, beware! The Great American Potato Beetle has its eye on you.

The Texas Cattle Tick.—"J. Y. H.," Montgomery Co., Pa. There is no remedy for the Texas cattle tick, but to keep Texan or western cattle out of the pastures. The tick does not convey or cause the disease, it is contact with the Texan cattle in the pastures by which it is communicated. A very simple means of prevention is to keep the western cattle completely isolated, and not to allow any native cattle to go into the field with them, nor to approach the fence of a field in which they are or have been this season. If there is any risk of contagion, the suspected cattle should have their mouths and noses and their whole hides rubbed over with a sponge moistened with a solution of one ounce of fluid carbolic acid in a gallon of water; half an ounce of sulphite of soda should also be given daily for a week or ten days after they have been exposed to infection.

Tomato Leaves and Plant-Lice.—Every one who trains and prunes his tomato plants, knows that his hands become covered with an adhesive, yellowish, strong smelling excretion of the leaves. A French horticulturist, M. Sisroy, discovered, by accident, that this strong smelling exudation is poisonous to aphides, and that water in which tomato leaves had been macerated, was quite as effective in destroying plant lice, as tobacco water. Stick a pin here—and try it next summer.

Draining with Oyster Shells.—"W. W.," Richmond Co., Va. Drains might be filled with oyster shells, as well as with gravel or stones. We have never heard of their being thus used, but can see no reason why temporary drains could not be made in that way. The only defect would be that, the flow of water being interrupted and not steady, all the silt or sand that would necessarily be carried into the drains, would be deposited, and would gradually fill them, or stop them. But this result might not happen for many years. It might be well to try the experiment in a small way at first.

Left-Hand Plow.—"W. L. H.," Elizabethtown, Ky. There are no special advantages possessed by a left-hand plow. It is a matter of fancy altogether that leads some people to prefer them.

Decorticated Cotton Seed.—"F.," Henrico Co., Va. Unfortunately the manufacturers of our native oil-cakes of cotton-seed, linseed, and peanuts, do not seem to care for the home market, which, if encouraged, or even met half way, might in time be very valuable. Cotton-seed oil-cake is very rarely to be procured in any of our large cities, as it is shipped to England, where it meets with a ready sale. Peanut oil-cake is also shipped abroad for sale, where it goes under the name of earth-nut cake. The value of decorticated or hulled cotton-seed cake is from $30 to $40 a ton.

Value of Cotton Seed.—"C. N. F." Cotton seed is a valuable fertilizer. Its ash contains 30 per cent of phosphoric acid, and 36 per cent of potash, the ash being 3 per cent of the fresh seed. The fresh seed contains 25 per cent of nitrogenous matter, equal to about 4 per cent of ammonia. In use upon a crop of sugar in Louisiana, $15 worth of cotton seed has been known to increase the crop 2,000 pounds upon an acre. The usual cost of cotton seed is from 10 to 20 cents per bushel.

Effects of Pumpkin Seeds.—"C. W. D." When pumpkins are fed to milk cows, they should be split open and the seeds removed. The seeds are diuretic in their effect, acting strongly upon the kidneys, and therefore reduce the quantity of milk. It is worth the trouble to remove the seeds whenever pumpkins are fed to stock, as anything that irritates the kidneys, or excites them to action unnecessarily, tends to weaken those organs. The seeds are of no value to the cows, medicinally, as either saltpeter or sweet spirits of niter, is a much better and more certain diuretic to administer when one is needed.

Deep and Shallow Setting of Milk.—In a recent test made by Mr. L. Hardin, of Louisville, Kentucky, at a dairy in Chatauqua Co., N. Y., to which he went for the express purpose, the difference in the amount of butter made from the same quantity of milk set in deep and shallow pans was as follows, viz: one pound of butter was made from 21.53 pounds of milk set in shallow pans, and one pound was made from 21.51 pounds of milk set in deep cans. 185 pounds of milk taken from 15 cows at the evening's milking were used. The advantage equal to 2 pounds only in over 2,000 was on the side of the deep cans.

Goats for Colorado.—"F. W. R.," Griffin Co., C. T. The only goats whose fleece or skin is in demand, is the Angora goat, sometimes improperly called the Cashmere goat. It is doubtful if these goats would be found, at present, so profitable as sheep. The prevalent idea that they never suffer from diseases, or by dogs or wolves, is unfounded. They are no hardier than the Merino sheep, and are unable to protect themselves. Neither will they live or thrive without suitable pasture, although they will *eat* much rough vegetation. They are nowhere kept in large flocks that we know of, except in parts of California, especially on some of the islands off the coast.

To Keep Milk Sweet.—"D. D. L.," Central City, Colorado. A tea-spoonful of common bi-carbonate of soda, such as is used for baking, dissolved in water and stirred into a pailful of milk, will prevent it from souring for several days.

Book on Poultry.—"C. L. S.," Bucksport, Me. Lewis' poultry book, price $1.50, and Wright's "Practical Poultry Keeper," price $2.00, are both useful works. It is difficult to say which of the two is to be preferred. Having both of them, one will possess about all the information necessary for a poultry keeper. Much new matter may be found in the last two volumes of the *American Agriculturist*.

Windgalls.—"W. S. C.," Wilkesbarre, Pa. An injury to, or an inflammation of, the tendons of the hind legs of a horse, will cause an excessive secretion of the synovial fluid, which gathers at the part affected, and forms soft swellings. These are known as windgalls. When they are on the hock, they are called bog spavins. They can not be permanently removed. Blistering may remove them temporarily.

Long Island Farming.—"I. B.," Sayville, L. I. It is usual with inexperienced persons to make very much too sanguine estimates of the profit of farming. As a rule, one may be sure that if this business could be made to pay 100 per cent yearly on the money invested, with no labor but supervision, every man would be a farmer in a short time. The truth is that the profits of farming, when most successful, are equal to legal interest on the capital employed, and less pay for the skill and labor expended than in any other successful business. But it is a safe and independent business, and one's capital is securely invested, and this is the chief attraction in it. An imaginary farm is a true "Spanish Castle" in nearly every instance.

The Mole Plow.—"W. W.," Milton Wharf, Va. The use of the mole plow is only a very partial and temporary expedient in the way of draining. It loosens the subsoil, and permits the water in the upper soil to sink to a lower level, or gradually to percolate through the subsoil, and to gather in the depressions until it sinks away. This implement can not be expected to make regular water channels, that could be of any practical use in carrying off the water. It would be an impossibility that its work should have the necessary accuracy for this. It is merely a substitute for permanent draining, and under some circumstances would undoubtedly be of great use for temporary purposes. Its effect would be subsoiling, and nothing more.

Planting Whole and Cut Potatoes.—"J. G. Q.," Tioga Center, N. Y., sends the following result of an experiment. He planted 12 hills of potatoes with two cut sets in each, and dug 72 lbs.; 12 hills with one large whole potato in each, and dug 60 lbs., and 12 hills with two small potatoes in each, and dug 48 lbs. The whole were planted 3 feet apart and were tended alike.

As to Homesteads.—"W. D.," Lonaconing, Md. A homestead can only be taken up by the applicant himself. He must enter his application in a certain form at the land-office of the district in person, paying certain fees at the time. There are plenty of homesteads still left in Nebraska and south-western Kansas. Lincoln in Nebraska, and Hutchinson in Kansas would be the nearest towns to the vacant lands, and the best places to go to get the necessary information. There are also plenty of vacant lands in western Texas. A thousand dollars carefully expended, should be sufficient to start a family of six persons comfortably upon a homestead.

Sow Eating her Pigs.—"S. L. M.," Orion, Ind. There is not always a reasonable explanation of the habit which some sows have of eating their pigs. It is undoubtedly an instinctive desire for animal food, arising probably from disordered digestion that impels them to this vice. A sow that has this habit should be given an ounce of gunpowder occasionally in her food. The charcoal, sulphur, and niter, of the powder are all useful, and in this shape may be conveniently given. Or in place of this a few hard wood coals may be quenched in water, and then given with a spoonful of sulphur and half as much saltpeter in the food. This mixture or the gunpowder should be given for a week or two before the sow farrows, and continued a week or two afterwards. When sows are shut up in pens, they are more subject to the vice than when running at large in a field.

Harness for a Bull.—"G. A. S.," Boston. The harness for a bull described in the *American Agriculturist* for August, 1875, can be made by any harness maker from the description and the illustration. Any ox-yoke maker can make the yoke.

Effect of Guano.—"J. T. McL.," Picton Co., N. S. When guano is applied to summer or fall grown crops, and because of a dry season its full effect has not been perceived, it is doubtful if the succeeding spring crop will be benefited, unless it be grass. Guano is very soluble, and the copious rains of fall and spring, or the melting snow of winter, would probably wash it into the soil beyond the reach of the next crop.

Umbilical Hernia.—"R. G. H.," Washington Co., N. Y. Hernia consists of an opening in the muscles of the abdomen, through which a portion of the bowels protrude. It appears generally as a small bunch or lump near the navel, and is not infrequent in colts. The opening through which the umbilical cord passes in the newly born colt, is a weak spot, and the most frequent seat of hernia. The remedy is to turn the colt on its back, return the bowel, and clamp the skin together with a pair of screw clamps, or pass a fine skewer through the doubled skin, bringing the edges of the opening in the muscular abdominal coat together, and winding a thread around the skewer, in the same manner as is done around the pin, after a horse has been bled. Care must be taken not to injure the peritoneum or inner lining of the abdomen.

Sheep or Cattle.—"A Subscriber," Sulphur Station, Texas. If a person knows how to manage sheep well, we believe there is more profit to be made out of them, than from cattle, especially upon a farm of 160 to 320 acres. The income from a flock of sheep may be from $4 to $8 per head, and five sheep may be kept, where one head of cattle can be. Besides the greater profit, there is less labor with sheep than with cattle. The capital required for both is about the same but it is more rapidly turned over in sheep-keeping.

Subsoiling Loose Land.—"E. W. J.," Akron, Ohio. When the subsoil is loose, open, and gravelly, subsoiling is unnecessary; upon such land it is generally sufficient to turn over the fertile surface soil, and to go no deeper with the plow than the soil can be manured. Gradually, as the soil can be enriched, the plow may go deeper, but much injury may result by plowing a thin, gravelly soil too deeply at first.

White Speck in the Eye.—"E. L.," Bradford Co., Pa. This is the result most probably of what is called "moon blindness," which generally terminates in cataract. First there is a large flow of tears, and the back portion of the eye is dull and clouded. The inflammation continues two or three weeks, and pus is formed, causing yellowish spots in the eye. The pus may be absorbed and disappear, or it may remain in part, leaving specks. In two or three months the attack is repeated, with the formation of more pus than before, until finally the whole pupil is filled with it, and a cataract is formed, which can only be cured, if curable at all, by a surgical operation. When the trouble first appears, the proper treatment is simply palliative, by frequently applying a mixture of one ounce of cold water with two drams of tincture of opium to the diseased eye.

Game Fowls.—"C. R.," Hart County, Ky. Game fowls are the best table fowls, and their eggs are well-flavored, and considered by cooks the best for cake and puddings. They are good layers. But they are as much subject to attacks by hawks as any other fowls. The game rooster, however, will give battle to a hawk that attacks a hen, if he is near enough, and will generally drive it away.

Sheep Raising and Wool Growing.—"H. H.," Canton, Miss. Randall's Fine Wool Sheep Husbandry is probably the best source of information as to raising sheep and wool in the southern states. The Merino is the most profitable sheep for the south, and southern grown wool, if the sheep are well cared for, is as valuable as that grown elsewhere.

How far Can Milk be Carried?—"C. J. B." If milk is "aired" and cooled as soon as it is drawn, and then placed in proper cans which are completely filled so that there will be no motion of the milk, and these are kept cool, it may be carried to a creamery distant a two hours' journey or perhaps more, without injury. At any rate it may probably be carried safely as far as the limit of cost will allow.

Boring Wells with Augers.—"P. A. K.," Fauquier Co., Va. To a person who knows nothing about the business of boring wells with augers, and who can not afford to lose his money, and hesitates to go into the business, we would simply say, Don't!

Patent Fence.—"J. C.," Cerro Gordo Co., Iowa. It does not follow that a patent fence which may not be considered worth paying $5 for the privilege of using, is a humbug. When patent rights are offered for sale no one is obliged to purchase if he does not think them worth the money asked for them. But if a person sees a new kind of fence in use by his neighbors and without enquiring if it is patented or not, builds one like it for himself, he ought not to complain if he is asked to pay a legitimate patent-right fee for its use. If the fence is worth using, it is worth paying for. The humbugs are those so-called novelties and improvements which have nothing novel or improved about them, and farmers should let such things alone.

Brittle Hoofs.—"C. H. D.," Susquehanna Co., Pa. Brittle hoofs are sometimes caused by the continual rasping down of the crust by farriers or blacksmiths; sometimes by the use of tar upon the hoofs, and it is often a constitutional defect of the horse. To remedy the defect in the former cases, refrain from the causes, and in any case the hoof is softened and made less brittle by rubbing it daily with pure glycerine and avoiding all contact with water or grease.

To Use Whole Cotton-Seed.—"J. C. B.," Mansfield, Texas. The husk of cotton-seed is hard and woody, and not easily digestible. When fed to horses or cattle, these husks frequently cause irritation of the stomach and intestines. Sheep which grind their food more thoroughly do not suffer in this way. When the seed cannot be hulled or ground, it should be softened by boiling or soaking in hot water, by which it is made more digestible. The cost of doing this would be well repaid by the increased value of the seed. See Prof. Atwater's article on page 10.

Steaming Feed for Cows.—"B. F. M.," Philadelphia. Steaming feed for cows is useful and economical when there is rough feed to be used along with meal or bran. It will be found to pay when ten head are kept, but hardly for less. In the *American Agriculturist* for January, 1873, is an article on cooking feed, with illustrations, in which full directions and explanations are given. It can be had for 15 cents.

Strong Manure.—"A Subscriber," Lexington, Mass. We never found any manure too strong for use. If it is very rich, less of it may be used. A mixture of poultry manure with stable manure will increase the strength of the latter, and it will go further in use. It would require a considerable portion of poultry droppings to double the value of mixed stable manure, certainly more than is often produced on the farm.

How Long is Milk Good for Butter?—"A Subscriber." The milk of a cow newly calved, not only contains more butter, but the butter exists in larger globules, and is more easily churned than afterwards. About five months after calving, the difference becomes appreciable in the churning, and after the cow becomes again in calf, there is often trouble in bringing the butter. The cream is not only small in quantity, but it is changed in character; the globules are very small, and exist as an emulsion with the milk, rather than as a separate part of it. Another reason for difficulty of bringing butter, is that when the cow has been milking for some time, the cream being less in quantity, has to be kept longer before a churning is gathered. Then in the souring of the milk, alcohol is formed by the decomposition of the sugar of milk; the alcohol forms an emulsion with the cream, and as this is beaten in the churn, it foams up and froths over, but makes no butter. When this happens, patience ceases to be a virtue, for it is useless; the cream might as well go into cakes or puddings, or to the pigs.

Sheep in Warm Climates.—"S. S. H.," Marshallton, Iowa. The Merino and its grades of our native sheep thrive well in warm climates. There are many localities in the United States where sheep can be pastured the year round, or with a very little help in winter. Texas, New Mexico, parts of Colorado, southern Kansas, Arkansas, the Gulf states, parts of Virginia, North Carolina, Georgia, and Tennessee, are excellent sheep grounds, especially for Merinos and their grades.

To Destroy "Everlasting."—"C. H. P.," Delaware Co., N. Y. The common weeds known as everlasting, as well as most of the weeds which trouble the farmer, are encouraged by keeping land in pasture. To plow up a piece of weedy grass land, sow buckwheat and then oats, sowing grass and clover again with the oats, and then pasturing the land, is about as good a plan as could be used to perpetuate the weeds. If the sod had been planted with corn, and the ground kept clean, and the next year or two years plowed again and put in potatoes or beans, being all the time kept free from weeds by hoeing or hand-pulling, the ground would be pretty well cleaned, and might then be sown to clover. The clover should not be pastured, but mowed once for hay, and once for seed. The sod might be plowed again for corn, and if the weeds were not destroyed, another crop of beans or roots should be taken. Few weeds will survive two or three well cultivated crops, and fewer still this process repeated.

Manufacturing Bone Fertilizers.—"P. C. T." Lee Co., Va. We cannot reccommend farmers to manufacture their own superphosphates from bones. Having made an attempt to do this, although well acquainted with the dangerous character of the sulphuric acid employed, and having facilities for procuring it cheaply, we found the trouble, the loss from unavoidable accident with the acid, to tools, clothing, and hands, and the difficulty of completely neutralizing the acid, without rendering the phosphate insoluble, were such as to prevent any repetition of the attempt. Unless the bones are ground fine, the process is long and troublesome, and to grind them fine, requires costly machinery. The acid used is a most dangerous substance, and an accident might cost the loss of one or both eyes, or severe burns upon the body. To make it in small quantities costs more than it can be purchased for, and an inexperienced person can not tell when the process is perfectly performed. In drying the pasty product, there is danger of spoiling the value of it. The process is not described in any book except a costly technical work, which is only useful to a chemist.

Value of one Cow.—The history of the Short-horn cow, Duchess 66th, which was sold in 1853 at Earl Ducie's sale, in England, to Colonel Morris, of Fordham, for 700 guineas, or $3,675, is remarkable as showing the actual value of one good breeding animal. From this cow, which was calved in November, 1850, there may be traced in direct descent a number of animals which have sold for about $500,000. Let it be admitted that as much of this value as may be, is depending on the fancy of rich breeders, and is not the intrinsic value of the beef and milk produced, yet no one can help admitting that an immense value, estimated in these alone, has accrued to the world from this cow; and in proportion to this value may be estimated the profit to a breeder from any superior animal he may produce. A line of breeding animals is brought into existence, which spreads out fan-like, and diverges year by year wider and wider, until we can no longer reach the bounds of the beneficial influence. It is in this that lies the value of any good animal, and it is an unfair disparagement to confine its value to the weight of meat upon its carcass, or its produce in milk and butter. The breeder who produces a superior animal sets in motion an impulse which must in time spread and increase enormously, and far beyond computation.

How many Bricks for a Cistern.—"T. H.," Hamden, Conn. A cistern 10 feet in diameter, and 10 feet deep, will hold nearly 6,000 gallons. Such a cistern will require 2,000 bricks if set on their faces; if set upon their edges, about 1,100 will make the wall. The floor is not included, as that may be cemented. Set upon their faces, 6 bricks will make a square foot of wall. Set upon edge it only takes 3½ bricks.

Learning Farming from a Hired Man.—"W. C.," N. Y. A hired man would be a poor teacher for an employer who knew nothing about farming. For a young man who knows nothing of farming, but who wishes to learn, it would be a good plan to live one year with a good farmer and work as a hired man, paying his board as a compensation to the farmer for the trouble of teaching the business. This would be better in every way than to learn from a hired man. To find a farmer who makes a living out of the labor of his men without his own personal direction and help, is a difficult if not impossible thing to do.

Glanders.—"D. D. R.," Mahaska, Iowa. Glanders first appears as a discharge from the nostril, generally one only, of a thin transparent liquid of an acrid character and without smell. The lining membrane of the nostril is not red, but of a dull livid or purple color. The disease is distinguished by these symptoms from any other in which there is a discharge from the nose. This stage may last for a few weeks, or for a year, but it commences soon after inoculation from a diseased animal. Afterwards ulcers form on the lining membrane of the nose, the discharge is thick and yellow; the glands under the jaw swell, become hard, and appear as if fixed to the bone, the horse's coat stares; he weakens rapidly, sores appear on his body, and he dies, thoroughly emaciated. In the first stage the horse may work for many months without distress. It is believed by some veterinary surgeons that at this stage the disease is curable by the use of sulphite (not sulphate) of soda, in half ounce or ounce doses given twice every day. A prominent European surgeon states that he has cured seventy cases of glanders by this treatment.

THE ST. NICHOLAS CLOCK.

AN ACCURATE AND RELIABLE

THIRTY-HOUR CLOCK FOR $2.00.

It is a detached lever escapement time piece, of careful construction. QUALITY GUARANTEED. Novel, tasteful, and attractive in style, and in every respect an article of superior excellence.

It will Run in any Position.

The following commendatory notice from the *Ladies' Floral Cabinet*, Henry T. Williams, editor, is a sufficient endorsement: "We have specially tested it in this office for several weeks. It was received at first with great doubt, not thinking it possible that so cheap an article could be worth much. To our surprise it has proved as accurate as the best $200 watches, runs with the very best regularity, obeys the regulator immediately, and appears perfectly sensitive to its slightest change. It will run one to two days without re-winding, is very neat and pretty, and thus far has answered every purpose claimed for it, and been fully as accurate and reliable as any clock of twenty times its worth. We think it well worth the money." Sent by mail, post-paid, on receipt of price.

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will make Ladies' and Children's Boots and Shoes that have become rough and red, and Ladies' Traveling Bags which look so old and rusty that they are ashamed to carry them, look just as good as new. It will not rub off or smut when wet. Softens the leather.

No lady will be without it after one trial. Beware of imitations and counterfeits. For sale everywhere.

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This man goes prepared for rain, because he has one of

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Beautiful Weather Houses

in his house, which shows him when it will storm, and you can have one sent to your house prepaid, by sending $2.00 to

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On receipt of one dollar we will send by return mail, post-paid, 6 tea-spoons and 3 tablespoons, silver-plated, or 6 table-forks and 1 butter knife, " " or 6 dessert knives, " " or
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This Pipe is a beautiful bronze, and is a facsimile of Independence Bell, which proclaimed Liberty throughout the land in 1776, and is now on exhibition in Independence Hall, Philadelphia. We will send one of these pipes and a beautiful Centennial Medal to any address, post-paid, on receipt of 35 cents. Special Prices to the Trade.

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Patented by Henry R. Robbins, of Baltimore, Md.

Manufactured and Sold by GEO. D. BISSELL & CO., Naugatuck, Ct.

Every housekeeper is willing to admit that a *really good* washing machine would prove a priceless boon to all the households in the land: since it would save not only time and labor, but wear and tear of material; and would also prevent much of the annoyance and discomfort incident to "washing day."

The proprietors of the Robbins Washer claim that they are sending out a machine that will perfectly cleanse without injury the most delicate fabric. It is constructed upon an entirely new principle—that of *forcing water* by downward pressure through the clothes—thus softening and removing the dirt by one operation. By its use all *rubbing* or *friction* is avoided; this alone will effect a saving of many times its cost, to an ordinary family, in the course of a year. It can be used with any common wash-boiler; no wash-board needed; requires only from fifteen to twenty-five minutes to wash a boiler full of clothes—and leaves them, after rinsing, *clean and sweet* and free from streaks or stains. It is cheap, simple, easy to operate, never gets out of order, and *will last a life-time.* The PHILOSOPHY of the whole thing is fully explained in our TREATISE ON THE ART OF CLEANSING FABRICS, which we send *free* to any address upon application by letter or postal card. Every housekeeper should send for one.

Retail price of the machine—No. 1, family washer, $3.50; No. 2, small hotel size, $5.00; No. 3, steam washer, for Hotels, Hospitals, and Laundries, $25.00.—Sample machines of No. 1 and No. 2 washers sent to those desiring agencies @ $3.00 and $4.00 respectively.

WE WANT IMMEDIATELY active, energetic business men to act as General Agents to introduce the ROBBINS WASHER into every town in the United States. To the right sort of men liberal terms will be given.—Canvassers can make more money at selling the washer than at any other business. *Send for circulars*, giving full description, terms to agents, &c., &c. All orders must be accompanied with cash. Remit by check, registered letter, or money order to Geo. D. Bissell & Co., Naugatuck, Ct.

Read what the people say about the Robbins Washer.

EATONTOWN, N. J., Sept. 23d, 1875.
GEO. D. BISSELL & CO.: GENTS:—The machine came all O. K., and the lady who tried one, "pronounces them perfect." Yours, &c., FRANK FLOWER.

SALT LAKE CITY, Sept. 27th, 1875.
Messrs. GEO. D. BISSELL & CO.: We have tried the Little Washer, and it is pronounced a complete success.
M. CANNON, Box 77, Salt Lake City, Utah.

MERRIMAC MILLS, FAIRFIELD, JEFFERSON CO., IOWA, Sept. 29th, 1875.
Messrs. GEO. D. BISSELL & CO.: GENTLEMEN:—The Washer Received. Like it very much. We will order two or three dozen in a few days. Save us as large a territory as possible. Would like the State of Iowa if it would not be asking too much. Yours truly, CALEB BATES.

CENTRETON, NEW JERSEY, Oct. 4th, 1875.
Messrs. G. D. BISSELL & CO:—The Washer came all right, Sept. 29th. My wife has washed with it twice, and she is perfectly delighted with it. It takes out the dirt complete. Among over three thousand different patents on Washers, I am fully convinced that this excels all, in the perfection of its work, in the quickness of doing it, in cheapness, and in the durability of its construction. I am an ordained minister of the M. E. Church, although not at work in the active ministry.
Yours, JULIUS WILCOX, Centreton, Salem Co., N. J.

Office of EMPIRE LOOM WORKS, R. REYNOLDS' SONS, STOCKPORT, COL. CO., N. Y., Nov. 22d, 1875.
Messrs. GEO. D. BISSELL & CO.: GENTLEMEN:—The Robbins' Washer you sent me, has proved itself the greatest labor-saving auxillary in the washing department of our household, we have ever used or seen. It fully realizes all you guarantee in your circular; and I shall recommend it wherever I can. Yours truly, R. BURNS REYNOLDS.

EATONTOWN, Nov. 27th, 1875.
Messrs. GEO. D. BISSELL & CO.: GENTS:—I am confident that if you would send your circulars, etc., giving full particulars, to the address of A. P. Flower, Esq., Spring Valley, Minnesota, you would secure a great market for your unrivaled machines. As Mr. F. (my cousin) is in the hardware business, (firm of Alley & Flower), he could sell a great many. I feel interested in spreading your little Washer in every section of the country. My wife would not part with the one we have for $500, if she could not procure another. It is certainly the only washer in existence that is of any account.
I am, Yours very truly, F. FLOWER.

The above are extracts from a few among hundreds of letters we have on file at our office. The originals will be cheerfully shown to all who may desire it. Don't fail to send for descriptive circular, terms to agents, &c., &c., to GEO. D. BISSELL & CO., Naugatuck, Ct.

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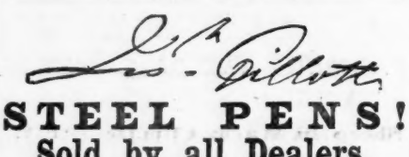

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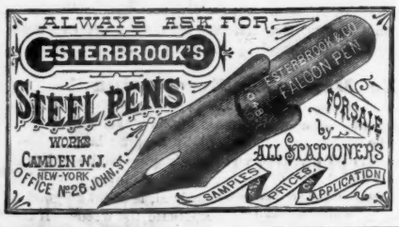

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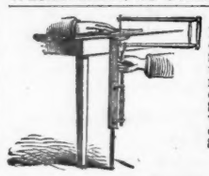

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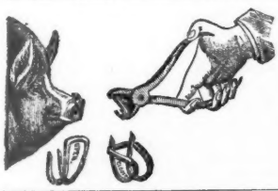

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NO DANGER FROM SPARKS. MADE TO WEAR NOT ALONE TO SELL.
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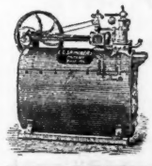

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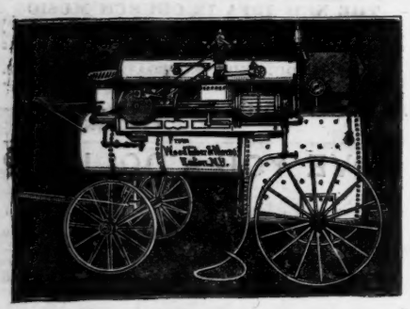

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